INDUSTRIAL MEDICINE *and* SURGERY

Established 1932

JUNE 1959

Volume 28 Number 6

Do Not Confuse it with Tranquilizers

Deaner®

p-acetamidobenzoic acid salt of 2-dimethylaminoethanol

Deaner is a gentle, slow-acting antidepressant—a totally new molecule. It counteracts mild depression, thereby differing from tranquilizers or sedatives which may aggravate depression.

Deaner is unlike ordinary stimulant drugs in that it gradually leads to increased useful energy and alertness, clearer mentation and emotional normalization.

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'Deaner' is supplied in scored tablets containing 25 mg. of 2-dimethylaminoethanol as the *p*-acetamidobenzoic acid salt. In bottles of 100.

In Mild Depression

and many other emotional and behavioral problems

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CLEANS wounds

removes necrotic tissue, crusted cell debris, pyogenic membrane, exudates

exposes wound surface to full effects of the anti-infective and anti-inflammatory agents

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destroys both gram-negative and gram-positive bacteria

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CONTROLS inflammation

reduces burning and itching associated with inflammatory dermatoses, wounds, ulcers, burns

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Hydrocortamate Hydrochloride. . . . . 1.25 mg.

In a water-miscible base that permits fullest release of medicaments for fullest therapeutic benefit.

*provided by a concentrate of pancreatic enzymes (e.g. chymotrypsin and trypsin).

Apply directly to the wound or lesion one to three times daily. Eschars or crusted lesions need not be softened before applying. **NOT** to be used as an ophthalmic ointment.

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contact dermatitis • infectious dermatitis • seborrheic dermatitis • stasis dermatitis

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provides spasmolytic, anti-inflammatory, and analgesic action

dosage: One to two tablets three or four times a day.
supplied: Tablets, scored, buff colored, bottles of 36. Each tablet contains PARAFLEX® Chlorzoxazone† 125 mg.; TYLENOL® Acetaminophen 300 mg.; and Prednisolone 1.0 mg.
precautions: The precautions and contraindications that apply to all steroids should be kept in mind when prescribing PARAFON WITH PREDNISOLONE.

1. Swanson, J. N.: Canad. M. A. J. *79*:638 (Oct. 15) 1958.

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The International Journal of Medicine in Industry

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NUMBER 6

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PERSONAL NEWS AND NOTES

DONALD O. HAMBLIN, M.D., will retire as Medical Director of American Cyanamid Company and subsidiaries, in January, 1960.

During his 26 years of service with American Cyanamid, DR. HAMBLIN organized the medical program as well as the concomitant Industrial Hygiene and Industrial Toxicology Services.

HAROLD H. GOLZ, M.D., has been designated his successor with the title of Director of Industrial Health.

DR. HAMBLIN will become an independent consultant in the field of Occupational Health.

CAPT. LLOYD B. SHONE, Medical Corps, U. S. Navy, was elected secretary of the American Academy of Occupational Medicine at the Academy's 11th Annual Meeting in Boston in February. He is presently director of the Occupational Medicine and Dispensary Division in the Bureau of Medicine and Surgery and is certified as a specialist in occupational medicine by the American Board of Preventive Medicine.

—*J.A.M.A.* April 11, 1959

HAROLD H. GAY, M.D., Medical Director for Dow Chemical Company, Midland, Michigan, was elected President of the Michigan Industrial Medical Association at its annual meeting, April 3, 1959. He succeeds PETER B. RASTELLO, M.D. Also elected were DUANE L. BLOCK, M.D., Physician in Charge of Medical Services of the Ford Motor Company, Rouge Medical, Dearborn, as President Elect; RICHARD J. MUDD, M.D., Medical Director, Chevrolet-Grey Iron Division, Saginaw, as Vice-President, and Henry J. KREULEN, M.D., Medical Director, Fisher Body Company, Grand Rapids, as Secretary.

MACK V. TRAYNOR, JR., M.D., has been appointed Assistant Medical Director of the Western States Life Insurance Co. of Fargo, N. D. DR. TRAYNOR is associated with the Fargo Clinic in internal medicine. He has been on the clinic staff since January, 1957, after completing a fellowship at the Mayo Clinic in Rochester, Minn. He is a graduate of Northwestern University Medical School and was with the Navy Medical Corps during the Korean conflict. He will work with A. C. FORTNEY, M.D., Medical Director of the company.

—*Fargo* (N. D.) *Evening Forum*, April 11, 1959

THE 13th International Congress on Occupational Health — first to be held in the Western Hemisphere — will meet in New York City, July 25 to 29, 1960, according to an announcement by Dr. Leo Wade, of New York, who is chairman of the Organizing Committee and Medical Director for Esso Standard Oil Company. Several thousand physicians, nurses, industrial hygienists and other delegates from more than 40 countries will attend.

"With experts from all over the world gathered in New York to discuss and share important knowledge in the fields of occupational injury and disease," he said, "the 13th Congress will emphasize the fact that the science of health knows no national boundaries."

Theme of the New York meeting will be prevention, rather than cure. Program participants from the many countries will report on their experiences, the findings of both clinical and laboratory research, and on methods for control of occupational health hazards.

The congresses are sponsored by the Permanent Committee and International Association on Occupational Health, of which Dr. Sven Forssman, of Stockholm, is president and Dr. Enrico Vigliani, of Milan, is secretary. All previous meetings have been held in Europe, beginning with the first one in Milan in 1906. The 12th Congress was in Helsinki in 1957.

Dr. Wade said the international meetings on occupational health are one means of implementing an objective outlined by the President in his latest State of the Union message.

"A program of science for peace," President Eisenhower said, "might provide a means of funneling into one place the results of research from

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References: 1. Alonso, M.: Bol. As. Med. Puerto Rico **50**:105, 1958. 2. Benton, C. D., Jr.: South. M. J. **48**:546, 1955. 3. Peele, J. C.: Laryngoscope **63**:488, 1953. 4. Leopold, I. H.: J. M. Soc. N. Jersey, **53**:213, 1956.

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neither antibiotics nor sulfonamides

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scientists everywhere, and from there making it available to all parts of the world. There is almost no limit to the human betterment that could result from such cooperation."

As modern industry continuously expands its uses of materials and technological techniques throughout the world, new occupational hazards come into being. Radioactive materials, for example, are being used to an increasing extent in industry. Findings of research now in being which will be reported at the 13th International Congress on Occupational Health will supplement present knowledge on the control and effects on health of exposures to radiation in industry.

CHARLES E. LEWIS, M.D., was appointed plant physician of the Texas Eastman Company, a division of the Eastman Kodak Company, it was announced recently by JAMES H. STERNER, M.D., Kodak medical director.

Texas Eastman, which is located in Longview, Tex., produces polyethylene plastic and industrial chemicals.

DR. LEWIS joined Kodak in Rochester, N. Y., in 1957 and has been a member of the industrial medicine laboratory there. He has specialized in toxicology and industrial hygiene and has authored several papers on these subjects.

He received a degree in chemical engineering from the University of Kansas and an M.D. degree from Harvard University. Later, he joined the Kettering Laboratory of the graduate school of the University of Cincinnati, where he earned an M.S. degree and is a candidate for a Doctor of Science degree this June.

DR. LEWIS served for two years as a physician in the U. S. Air Force and is a member of the Industrial Medical Association.

Institute of Industrial Health of the University of Cincinnati announces that the fourth biennial course of instruction in Occupational Skin Problems will be given during the week of October 26-30, 1959. It will be presented by the Department of Preventive Medicine and Industrial Health, University of Cincinnati, in collaboration with the Occupational Health Program of the United States Public Health Service, and the Department of Dermatology of the University of Cincinnati. The objective of this course is to give physicians a greater understanding of cutaneous problems of occupational origin.

The program will be divided into daily sessions consisting of morning lectures and clinical demonstrations, afternoon field instruction in industrial plants and evening panel discussions. The didactic presentations will include a review of the anatomy, physiology and chemistry of the skin. Detailed consideration will be given to the etiology, diagnostic evaluation and treatment of occupational dermatoses, as well as specific measures for prevention and control of these problems. Current concepts regarding cutaneous cancer, allergic reactions and medicolegal problems will be discussed.

For further information, write: Secretary, Institute of Industrial Health, The Kettering Laboratory, Eden and Bethesda Avenues, Cincinnati 19, Ohio. Early application is advised since attendance will be limited.

FIRST Occupational Health Seminar to be held in the Republic of Colombia, South America, is scheduled for June 22-27, 1959, at the National University of Bogotá. It is being organized by the Industrial Hygiene Service, Colombian Ministry of Public Health in collaboration with the Colombian Institute of Social Security. The latter provides medical services for industries and hospitalization for workers in all major industrial centers of the nation. DR. ROBERTO ACOSTA B., Director of the Colombian Industrial Hygiene Service, is the chairman of the Organization Committee of the Seminar, and has arranged an excellent tentative program.

The principal themes of the seminar will be Pneumoconioses, Occupational Dermatoses and Public Health Engineering. These subjects will be discussed respectively by HARRIET HARDY, M.D., of the Massachusetts General Hospital, Boston; DONALD J. BIRMINGHAM, M.D., Chief Dermatologist of the U. S. Public Health Service; and MR. THEODORE HATCH, Professor, Occupational Health Engineering, Graduate School of Public Health, University of Pittsburgh. Among others participating in the program will be MR. JOHN J. BLOOMFIELD, long time Assistant Director, Division of Industrial Hygiene, United States Public Health Service, presently of the International Cooperation Administration, as Regional Consultant in Industrial Hygiene for Latin America, of Lima, Peru.

Died

HOWARD K. EDWARDS, M.D., 49, Medical Director for Eastern Air Lines, at Lake Tahoe, California, April 18, 1959, while enroute to attend the annual meeting of the Aero Medical Association of the United States, of which he was a founder and for the past three years a member of its executive council.

DR. EDWARDS lived in Miami, Florida, attended the University of Florida and was a graduate of the University of Miami. He received his medical education from the University of Alabama and Washington University, St. Louis. He was a member of the American College of Chest Physicians, the American Trudeau Society, and the Industrial Medical Association, and was a specialist in pulmonary diseases. He joined the medical staff of Eastern Air Lines in May, 1941, and shortly thereafter was appointed the company's Medical Director.

Last year, working in cooperation with researchers from the University of Miami and several hundred Eastern Air Lines employees who volunteered for experimental tests, DR. EDWARDS developed an effective new method for administering vaccine for immunization against the Asiatic Flu, using one-tenth the dosage formerly required (*Industrial Medicine and Surgery*, December, 1958, page 638). This important discovery permitted a more extensive use of the available vaccine supplies at a time when they were in very short supply throughout the country.

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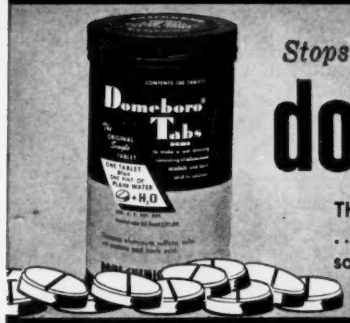

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two tablets every 3 hours

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Ambodryl hydrochloride (bromodiphenhydramine hydrochloride, Parke-Davis)	24 mg.
Benadryl hydrochloride (diphenhydramine hydrochloride, Parke-Davis)	56 mg.
Dihydrocodeinone bitartrate	1/6 gr.
Ammonium chloride	8 gr.
Potassium guaiacolsulfonate	8 gr.
Menthol	q.s.
Alcohol	5%

Supplied in 16-ounce and 1-gallon bottles.

Dosage: Every three or four hours—adults, 1 to 2 teaspoonfuls; children, ½ to 1 teaspoonful.

soothes irritation quiets cough and tastes good too

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the complaint: "nervous indigestion"

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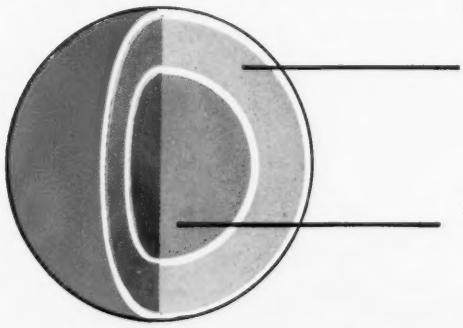

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Phenobarbital (1/8 gr.)	8.1 mg.
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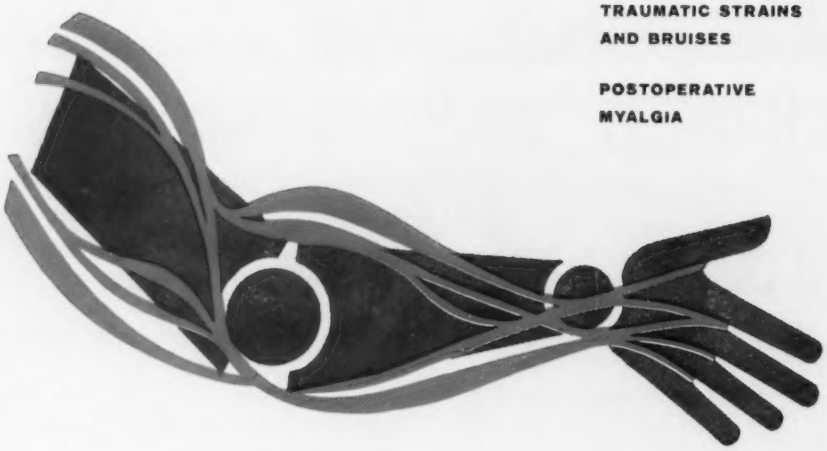

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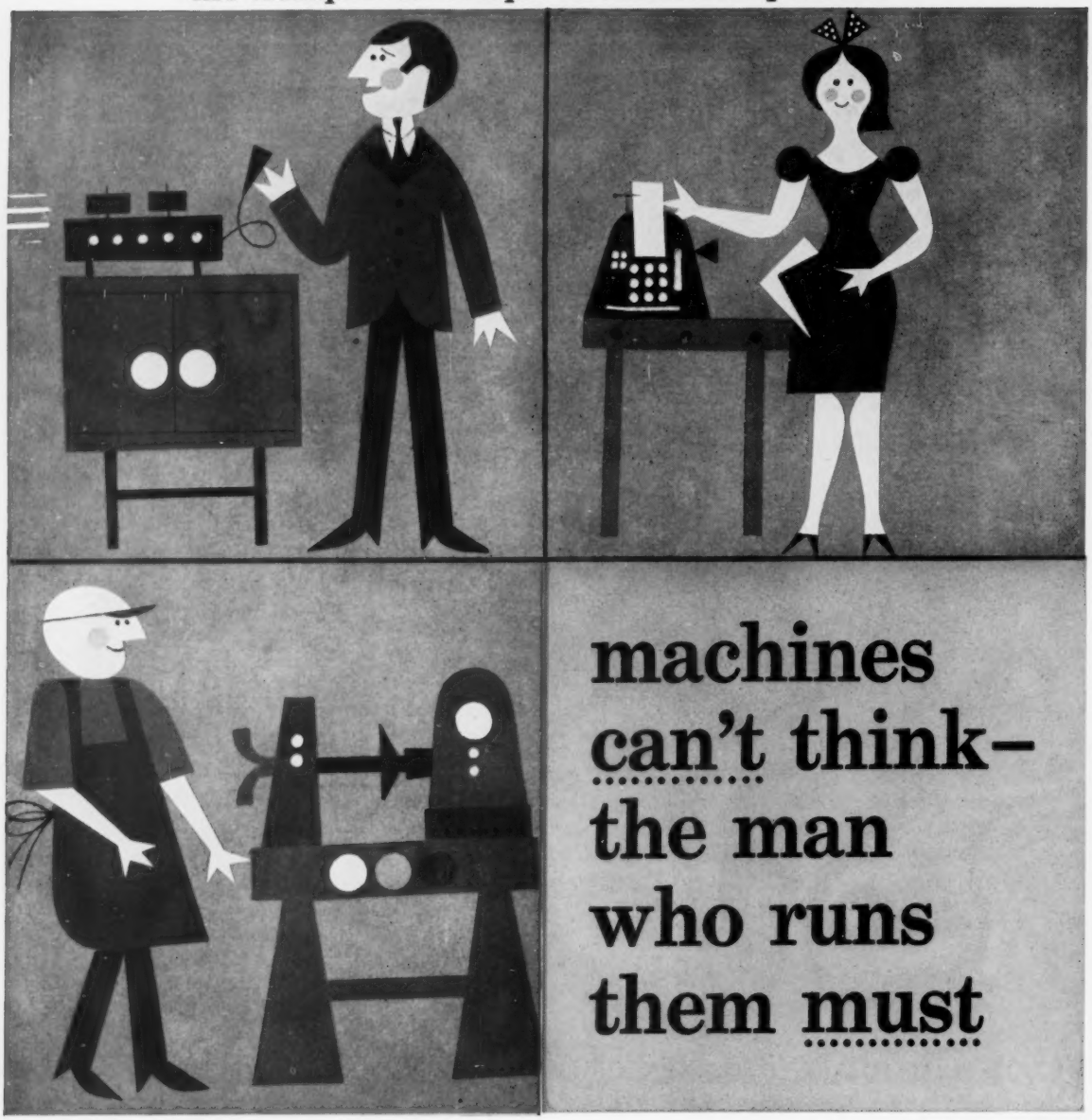

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Supplied: Tiny 10 mg., 25 mg., and 100 mg. tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.

References: 1. Ayd, F. J., Jr.: New York J. Med. *57*:1742 (May 15) 1957. 2. Bayart, J.: Presented at the International Congress of Pediatrics, Copenhagen, Denmark, July 22-27, 1956. 3. Cohen, S.: Am. Pract. & Digest Treat. *8*:946 (June) 1957.

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References: 1. Cronk, G. A.; Naumann, D. E., and Casson, K.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia Inc. 1958, p. 397 • 2. Newcomer, V. D.; Wright, E. T., and Sternberg, T. H.: Antibiotics Annual 1954-1955, New York, Medical Encyclopedia Inc., 1955, p. 686.

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Each PARAFON WITH PREDNISOLONE tablet contains: PARAFLEX® Chlorzoxazone‡ 125 mg., TYLENOL® Acetaminophen 300 mg., and prednisolone 1.0 mg.

Supplied: Tablets, scored, buff colored, bottles of 36.

Precautions: The precautions and contra-indications that apply to all steroids should be kept in mind when prescribing PARAFON WITH PREDNISOLONE.

McNEIL

McNeil Laboratories, Inc • Philadelphia 32, Pa.

†Trademark ‡U. S. Patent Pending

248A59

CYANAMID

Davis & Geck Sutures 1909—1959

50 Years of Service to the Surgical Profession

SURGICAL PRODUCTS NEWS

NO. 2

SURGICAL PRODUCTS DIVISION LINE NOW AVAILABLE TO PHARMACIES

Davis & Geck Sutures, Vim Syringes and Needles to be Readily Available for Office Use

In an important move designed to make its products more conveniently available to physicians, the American Cyanamid Company has announced that pharmacies throughout the country will now be able to stock and sell a number of the most popular items in the line. Quality Davis & Geck Sutures, Vim® Syringes and Needles, and the many other outstanding products which are described below, are now readily obtainable for office use!

DETACH AND MAIL COUPON ON REVERSE SIDE—*Your Pharmacist Will Receive Full Information on How to Obtain this Desirable Product Line.*

MODERN STRIP-PACK SUTURES FOR BAG OR OFFICE

Sterile Davis & Geck Atraumatic® Sutures in Quick-Opening Plastic Envelopes Offer Greater Safety and Convenience

The exclusive new Surgilope SP® *double-envelope* suture strip pack completely eliminates suture storage in jars and solutions and the nuisance of shattering a glass tube whenever a suture is needed. Broken glass cannot damage

Surgilope SP sutures in new, one-dozen box are excellent for office use.

the suture or invade the wound area, and the risk of cross-contamination through returning unused sutures to *common* storage jars, is avoided.

The Emergency Suture Kit makes a handy addition to any doctor's bag.

Developed by the oldest established producer of quality suture products, new Davis & Geck plastic-packed sutures have been rapidly adopted by leading hospitals. Now, a wide selection of these sutures—in surgical gut, silk, cotton, nylon, polyethylene and stainless steel, armed with Atraumatic® needles—has been packaged in boxes of one-dozen for convenient office use. In addition, a special Emergency Suture Set, containing six sterile, non-absorbable sutures in a plastic, snap-catch box, is available as a handy item for the doctor's bag.

For further information on these outstanding suture products for office use, mail the coupon on reverse side. Your druggist can arrange to carry these and other products in this line by writing to the same address.

NEW ELASTIC FOAM PRESSURE BANDAGE

Synthetic Material is Self-Adherent, Porous, Lightweight, Completely Washable

Far lighter and more porous than standard elasticized bandages, this new elastic foam material helps to speed healing and enhance patient comfort wherever pressure dressings are indicated. Because it clings to itself, the foam bandage is especially easy to apply; stays neatly in place where other bandages tend to slip or creep. It may be washed and autoclaved without deterioration and is physiologically inert. The new bandage is supplied in 3-yard rolls; 2″, 3″, 4″ and 6″ widths are available.

NEW STERILE DISPOSABLE BLOOD LANCET

Packaged sterile for one-time use, the new Vim Blood Lancet makes it possible to obtain blood samples without risk of cross-infection. Its sharp, triangular point produces a controlled puncture of correct depth with minimum discomfort. Each blood lancet is sterilized *after* sealing for complete protection. Broad, ridged blades ensure easy handling. Available in boxes of 200 and cartons of 1000 for economical office use.

New All-Purpose Contact Dressing Prevents Painful Tearing of Wound Surfaces

Sterile Owens® Dressing Has Unique Microgauge Weave—Permits Adequate Drainage Without Sticking On Removal

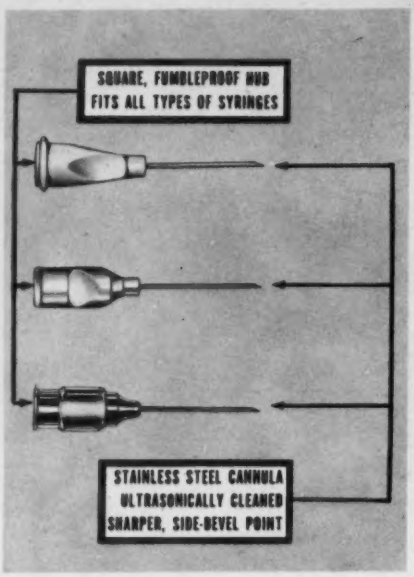
Packaged sterile in individual envelopes, Owens contact dressings are excellent for routine use to prevent adherence when dressing surface wounds. The unique, "microgauge" rayon mesh effectively bars capillary penetration without the use of messy occlusive ointments. Liquid exudates pass freely, yet

the dressing may be removed without painful tearing of wound surfaces. Owens dressings have been used for 4 years in leading hospitals. They are available Plain or Neomycin-Treated; sizes 3″ x 8″ and 8″ x 12″.

NEW VIM DISPOSABLE & ECONOMY STERILE NEEDLES OFFER EVERY QUALITY OF FINEST STANDARD TYPE

Exclusive All-Plastic, Snap-Open Pack Assures Complete Protection, Maximum Convenience

Both the Vim Disposable and Vim Economy needles are packaged sterile in individual snap-open packs of clear, durable, wet-proof plastic. For convenient handling they are supplied in 10-unit strips from which individual needle packs are easily detached.

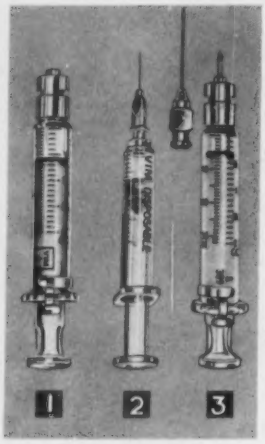


VIM DISPOSABLE NEEDLE
Completely disposable . . . offers positive protection against cross-infection, plus every important high-performance feature. A "quality" needle at a "disposable" price!

VIM ECONOMY NEEDLE
Aluminum-hubbed reusable needle, sterile-packed for speedy first-time use . . . inexpensive enough to be discarded before resharpening is required.

VIM LAMINEX† NEEDLE
Finest Vim standard needle. Patented Laminex alloy stainless steel cannula combines outstanding point-holding properties with optimum toughness and flexibility.

3 SYRINGES WIDELY USED BY HOSPITALS



1. **VIM CLEAR-BARREL INTERCHANGEABLE SYRINGE.** A premium quality syringe, long a favorite of physicians. All plungers and barrels are truly interchangeable. Available with glass, Luer lock and metal tips.
2. **VIM DISPOSABLE SYRINGE** Provides positive protection against cross-infection without sacrificing dependable performance. Has the heft, balance and satin-smooth action of the finest quality instrument. Exclusive, chemical-resistant construction throughout. Available with or without needle, packaged sterile in tough, transparent polyethylene envelopes.
3. **VIM GABRIEL ASPIRATING SYRINGE** Assures undamaged needle point. Stubby, large-gauge aspirating tip punctures stopper, easily withdraws viscous medications. Fresh, sharp injection needle quickly locks over aspirating tip.

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Fill out and mail this coupon to:
AMERICAN CYANAMID COMPANY, SURGICAL PRODUCTS DIVISION, DANBURY, CONN.

New Sterile Aerosol Products Save Time, Improve Patient Care

ACHROSURGIC* *Sterile Antibiotic Spray Powder.* Contains 1% Achromycin® Hydrochloride (tetracycline hydrochloride) crystalline suspension, in an aerosol dispenser can. A handy, highly effective topical antibiotic for treatment of infection of wounds and abrasions, after surgery, leg ulcers, bacterial dermatoses, decubitus ulcers, burns and other denuded areas.

TOPASIL* *Sterile Silicone Skin Protectant.* Conveniently applied without touching the area involved, Topasil quickly films skin with a sterile, greaseless, odorless coating...effectively seals it against the irritating effects of abrasion, perspiration, urine and other irritating fluids. Recommended for diaper rash, bedsores, contact dermatitis, chapped skin, areas surrounding colostomies and ileostomies.

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Sinaxar® (ETYRAMATE, ARMOUR)

a specific skeletal muscle relaxant

Chemically unlike any other muscle relaxant, Sinaxar is

- consistently effective in the majority of cases
- long acting: no fleeting effects
- purely a skeletal muscle relaxant . . . free of adverse physical or psychic effects frequently encountered with tranquilizers

DOSAGE: *Two tablets three or four times daily.*

SUPPLIED: *200 mg. tablets in bottles of 50.*

INDICATIONS: Any condition involving skeletal muscle spasm, as ***musculoskeletal disorders:*** acute and chronic back ache; arthritides; bursitis; disc syndrome; fibrositis; myalgia; myositis; osteoarthritis; following orthopedic procedures; rheumatoid arthritis; spondylitis; sprains and strains; torticollis; ***neurologic disorders:*** cerebral palsy; cerebrovascular accidents; cervical root syndrome; multiple sclerosis.

ARMOUR

ARMOUR PHARMACEUTICAL COMPANY • *A Leader in Biochemical Research* • KANKAKEE, ILLINOIS

Sinutab™ really resolves sinus or frontal headache

"In Texas: *'Good relief in 7 out of 8 sinus headaches. Good relief in 15 out of 20 patients suffering from sinus and certain other types of headaches.'* Hospital O.P. D.: *'Tried Sinutab last week—all five patients responded very favorably to Sinutab.'* In Indiana: *'Nothing relieved pressure and throbbing until Sinutab.'* In Washington, D. C.: *'I used Sinutab on my toughest cases. These (sinus headache) patients are calling in about the dramatic results....'* In Buffalo: *'...very enthused about Sinutab...put some patients and wife on Sinutab and had excellent results.'* In Syracuse: *'She (patient) called me to say the new tablets gave her the first real relief from sinus headache....'* In the State of Washington: *'Doctor's Nurse volunteered Sinutab relieves her headache quickly, the first relief in years.'* In Internal Medicine...in Denver, Colorado: *'My patient had his first sinus relief with Sinutab....'* In Indiana: *'Sinutab has proved to be very effective and I have gotten wonderful results in all but one patient.'* In Wisconsin: *'...A local woman has had sinus trouble for about 15 years...tried everything...tried Sinutab and now the woman is comfortable....'*"

These clinical impressions were received from physicians throughout the nation on Sinutab, our effective new sinus and frontal headache preparation.

These candid quotes are only a few of many, but they confirm the rapid and widespread acceptance of Sinutab as a truly effective, well-tolerated therapy. Please note that much of the success of Sinutab has been with patients unresponsive to other therapies.

Cordially,

Joseph M. White

Joseph M. White, M.D.
Warner-Chilcott Laboratories

With a single prescription, Sinutab aborts pain, decongests, relieves pressure and provides mild tranquilizing action to relax the patient. Prescribe Sinutab for your patients with sinus or frontal headache.

DOSAGE: *Adults:* two tablets every four hours; prophylactically one tablet every four hours. *Children 6 to 12 years:* one-half adult dose. SUPPLIED: Bottles of 30 tablets. SINUTAB FORMULATION: N-acetyl-para-aminophenol (APAP), 150 mg., (2½ gr.); Acetophenetidin, 150 mg., (2½ gr.); Phenylpropanolamine HCl, 25 mg., (⅜ gr.); Phenyltoloxamine Dihydrogen Citrate, 22 mg. (⅓ gr.).

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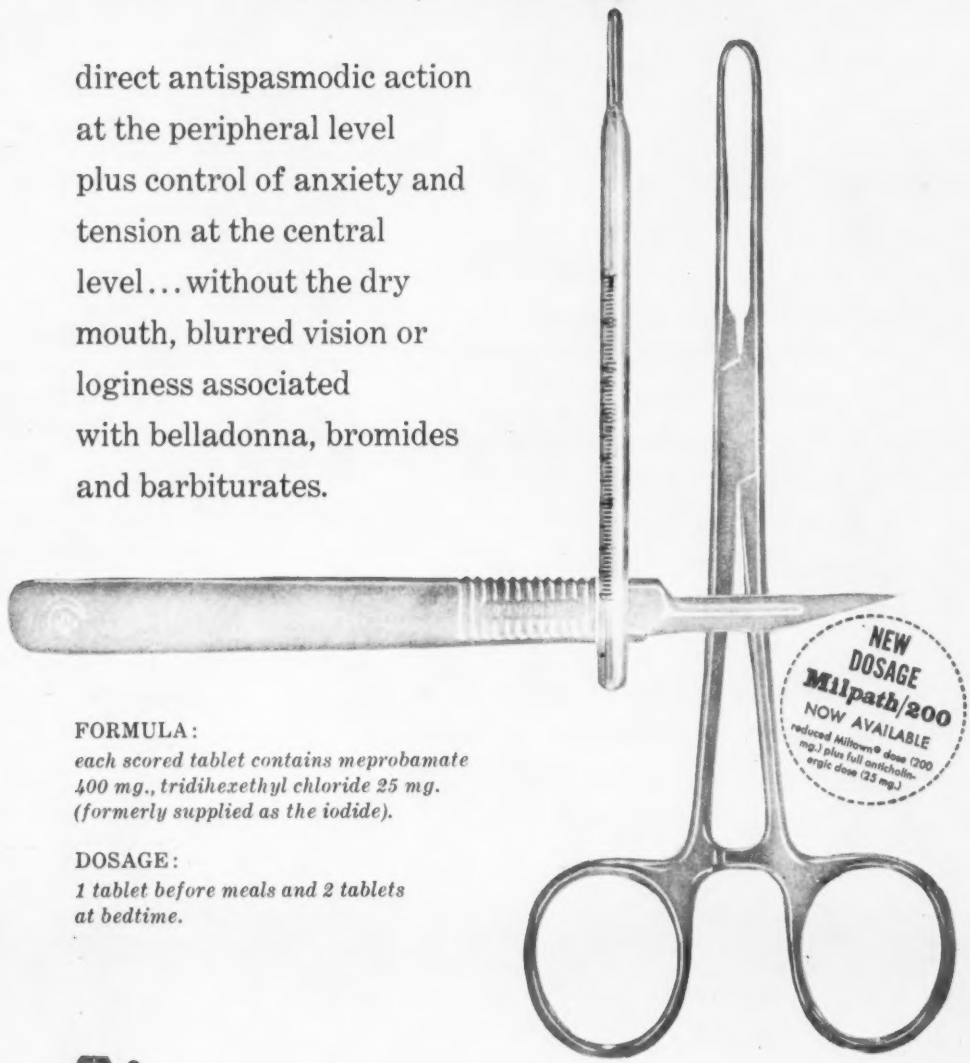
CONTROL G.I. SPASM
PRE and POST OPERATIVELY

Milpath®

®Miltown + *anticholinergic*

direct antispasmodic action
at the peripheral level
plus control of anxiety and
tension at the central
level... without the dry
mouth, blurred vision or
loginess associated
with belladonna, bromides
and barbiturates.

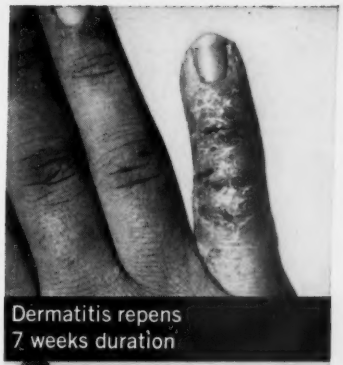


FORMULA:
each scored tablet contains meprobamate 400 mg., tridihexethyl chloride 25 mg. (formerly supplied as the iodide).

DOSAGE:
1 tablet before meals and 2 tablets at bedtime.

WALLACE LABORATORIES *New Brunswick, N.J.*

new for total management of itching,[1,2] inflamed,[3,4] infected[5,6] skin lesions



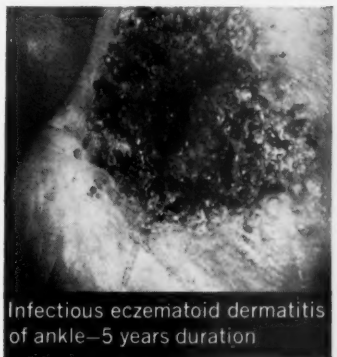
Dermatitis repens
7 weeks duration

Cleared in 5 days

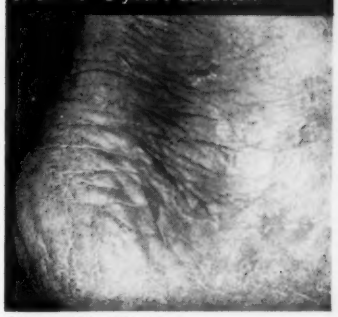
Mycolog ointment

Kenalog, Spectrocin and Mycostatin in Plastibase

antipruritic/anti-inflammatory/antibacterial/antifungal



Infectious eczematoid dermatitis of ankle—5 years duration



Cleared in 20 days

Mycolog Ointment – containing the new superior topical corticoid Kenalog – reduces inflammation,[3,4] relieves itching,[1,2] and combats or prevents bacterial, monilial and mixed infections.[5-7] It is extremely well tolerated, and assures a rapid, decisive clinical response for most infected dermatoses.

> "Thirty-one of 38 patients . . . obtained excellent or good control of dermatological lesions . . . [Mycolog] was highly effective, particularly in the management of mixed infections. Several recalcitrant eruptions which had not responded to previous therapy were remarkably responsive to the daily application of this preparation over periods of 2 to 3 weeks."[5]

For total management of itching, inflamed, infected skin lesions, Mycolog contains triamcinolone acetonide, an outstanding new topical corticoid for prompt, effective relief of itching, burning and inflammation[1-4] – neomycin and gramicidin for powerful antibacterial action[7] – and nystatin for treating or preventing Candida (Monilia) albicans infections.[8,9]

Application: Apply 2 to 3 times daily. Supply: 5 Gm. and 15 Gm. tubes. Each gram supplies 1.0 mg. (0.1%) triamcinolone acetonide, 2.5 mg. neomycin base, 0.25 mg. gramicidin, and 100,000 units nystatin in PLASTIBASE.

References: 1. Shelmire, J.B., Jr.: Monographs on Therapy 3:164 (Nov.) 1958. • 2. Nix, T.E., Jr., and Derbes, V.J.: Monographs on Therapy 3:123 (Nov.) 1958. • 3. Robinson, R.C.V.: Bull. School of Med., U. Maryland 43:54 (July) 1958. • 4. Sternberg, T.H., Newcomer, V.D., and Reisner, R.M.: Monographs on Therapy 3:115 (Nov.) 1958. • 5. Clark, R.F., and Hallett, J.J.: Monographs on Therapy, 3:153 (Nov.) 1958. • 6. Smith J.G., Jr., Zawisza, R.J., and Blank, H.: Monographs on Therapy, 3:111 (Nov.) 1958. • 7. Monographs on Therapy, 3:137 (Nov.) 1958. • 8. Howell, C.M., Jr.: North Carolina M.J. 19:449 (Oct.) 1958. • 9. Bereston, E.S.: South. M.J. 50:547 (April) 1957.

And whatever the topical corticoid need, a suitable Squibb formulation is available—Kenalog-S Lotion—7½ cc. plastic squeeze bottles. Each cc. supplies 1.0 mg. (0.1%) triamcinolone acetonide, 2.5 mg. neomycin base and 0.25 mg. gramicidin. Kenalog Cream, 0.1%—5 Gm. and 15 Gm. tubes. Kenalog Lotion, 0.1%—15 cc. plastic squeeze bottles. Kenalog Ointment, 0.1%—5 Gm. and 15 Gm. tubes.

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Squibb Quality — the Priceless Ingredient

'SPECTROCIN'®, 'MYCOSTATIN'®, 'PLASTIBASE'®, 'MYCOLOG' AND 'KENALOG' ARE SQUIBB TRADEMARKS

HEAVY METAL POISONING
is still a Formidable Threat

...but now Calcium Disodium VERSENATE provides a dependably effective means of removing lead and other heavy metals from the body...and *without danger of organ damage.* Calcium Disodium VERSENATE is available in both oral and intravenous preparations; the intravenous form for safe, effective, dramatic short-term treatment; the oral form for convenient prevention of exacerbations or as sole therapy for milder types of lead poisoning.

NOW IN 2 DOSAGE FORMS

INTRAVENOUS—Complete instructions for dilution and administration accompany the ampuls. The average daily dose for an adult is 1 to 2 Gm. per day, given as two infusions. For children, the dose is not more than 0.5 Gm. per 35 pounds of body weight, given once or twice daily. Boxes of six 5 cc. (1 Gm.) ampuls.

ORAL—Average adult dose is 8 tablets (4 Gm.) per day, in divided doses. For children, the dose is adjusted on the basis of 2 tablets (1 Gm.) per 35 pounds of body weight daily, in divided doses. For ease of administration tablets may be crushed and dissolved in milk. In bottles of 250 tablets, each containing 500 mg.

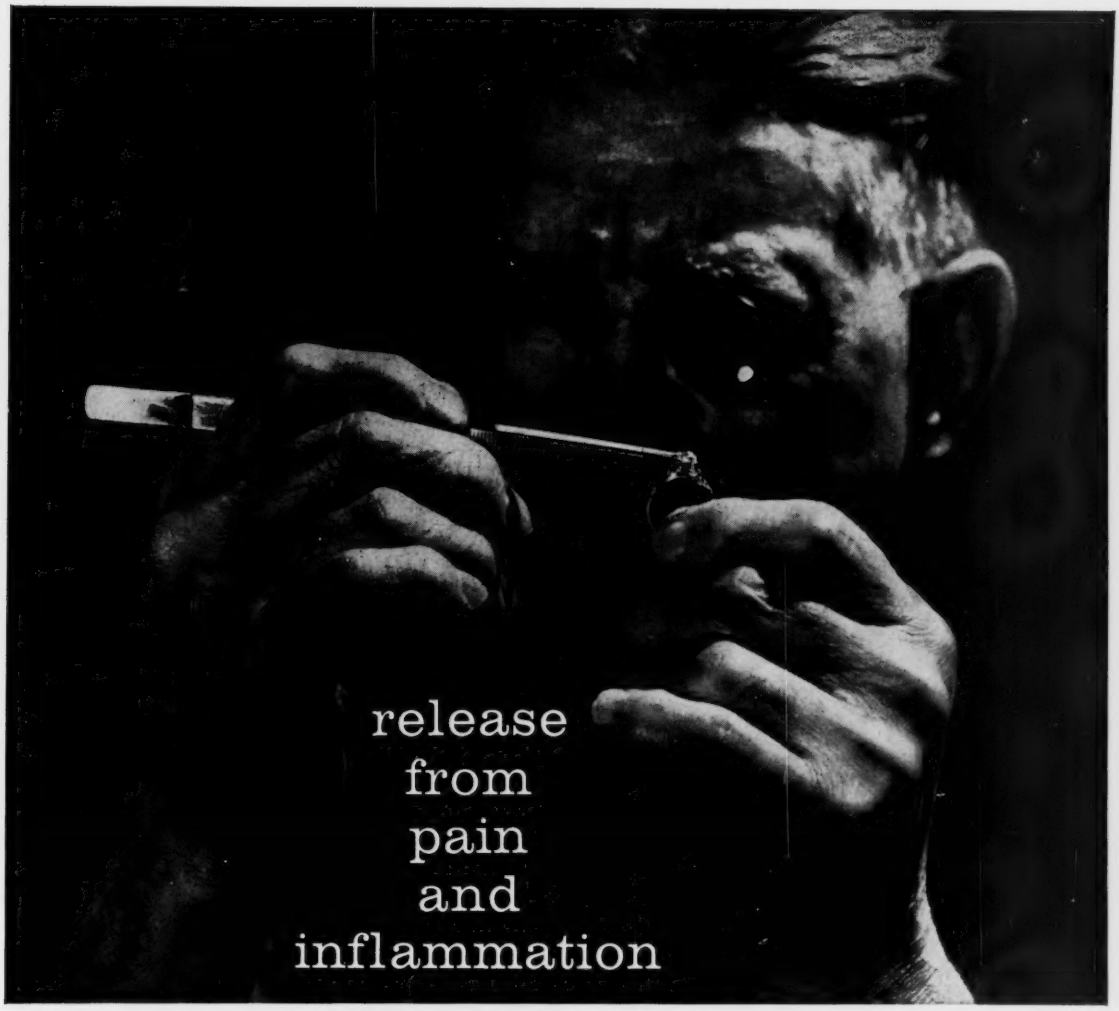
Write for descriptive literature.

Calcium Disodium **VERSENATE***

spells the answer

*Trademark of Dow Chemical Co.

Riker NORTHRIDGE, CALIFORNIA



with **BUFFERIN® IN ARTHRITIS**

salicylate benefits with minimal salicylate drawbacks

Rapid and prolonged relief—with less intolerance.

The analgesic and specific anti-inflammatory action of BUFFERIN helps reduce pain and joint edema—comfortably. BUFFERIN caused no gastric distress in 70 per cent of hospitalized arthritics with proved intolerance to aspirin. (Arthritics are at least 3 to 10 times as intolerant to straight aspirin as the general population.[1])

No sodium accumulation. Because BUFFERIN is sodium free, massive dosage for prolonged periods will not cause sodium accumulation or edema, even in cardiovascular cases.

Each *sodium-free* BUFFERIN tablet contains acetylsalicylic acid, 5 grains, and the antacids magnesium carbonate and aluminum glycinate.

Reference: 1. J.A.M.A. 158:386 (June 4) 1955.

ANOTHER FINE PRODUCT OF BRISTOL-MYERS

Bristol-Myers Company, 19 West 50 Street, New York 20, N. Y.

25,000,000 courses of treatment – and NO "resistance" problems

*Conservative estimate based on combined use of all FURACIN preparations since 1945.

FURACIN®

brand of nitrofurazone

In clinical use for more than 12 years and today the most widely prescribed single topical antibacterial, FURACIN—like other nitrofurans—remains effective against pathogens which have developed, or are prone to develop, resistance to other antibacterial agents. There has been no evidence that originally sensitive strains of staphylococci or other bacteria lose their susceptibility to FURACIN in any significant degree.

the wide-spectrum antibacterial exclusively for topical use ... in dosage forms for every topical need

Available as Soluble Dressing, Soluble Powder, or Solution. Also in Vaginal and Urethral Suppositories and in special formulations for eye, ear and nose.

one of the unique nitrofurans— products of Eaton research
Eaton Laboratories, Norwich, New York

NOW

J&J

POROUS TAPES

PERMIT THE SKIN

TO "BREATHE"

POROUS

Available Now in
1″, 2″, 3″ and 4″ widths

Products bearing Red Cross trademark have no connection with American National Red Cross.

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ZONAS TAPE TOO IS POROUS!

Now, a new J&J process imparts the same *porous* feature to ZONAS "regular" (non-elastic) adhesive tape.

A unique method of coating creates hundreds of porelike holes in the adhesive mass which allow perspiration to escape from the skin.

Because it too, permits the skin to "breathe", ZONAS *porous* tape minimizes a significant cause of irritation and is more comfortable for the patient.

ZONAS® Porous Adhesive Tape

NOW AVAILABLE in 12″ x 10 yd. rack rolls in the following widths:
½″, 1″, 1½″, 2″, 3″, 4″ and assorted.

Johnson & Johnson

HELPING THE HANDS THAT HEAL

PAIN Zactirin®

Ethoheptazine Citrate with Acetylsalicylic Acid, Wyeth

for everyday pain control . . .

for your many patients requiring potent analgesia but not an injected narcotic

Proved by extensive evaluation[1,2,3] in 1998 patients in diverse areas of medicine and surgery, including:

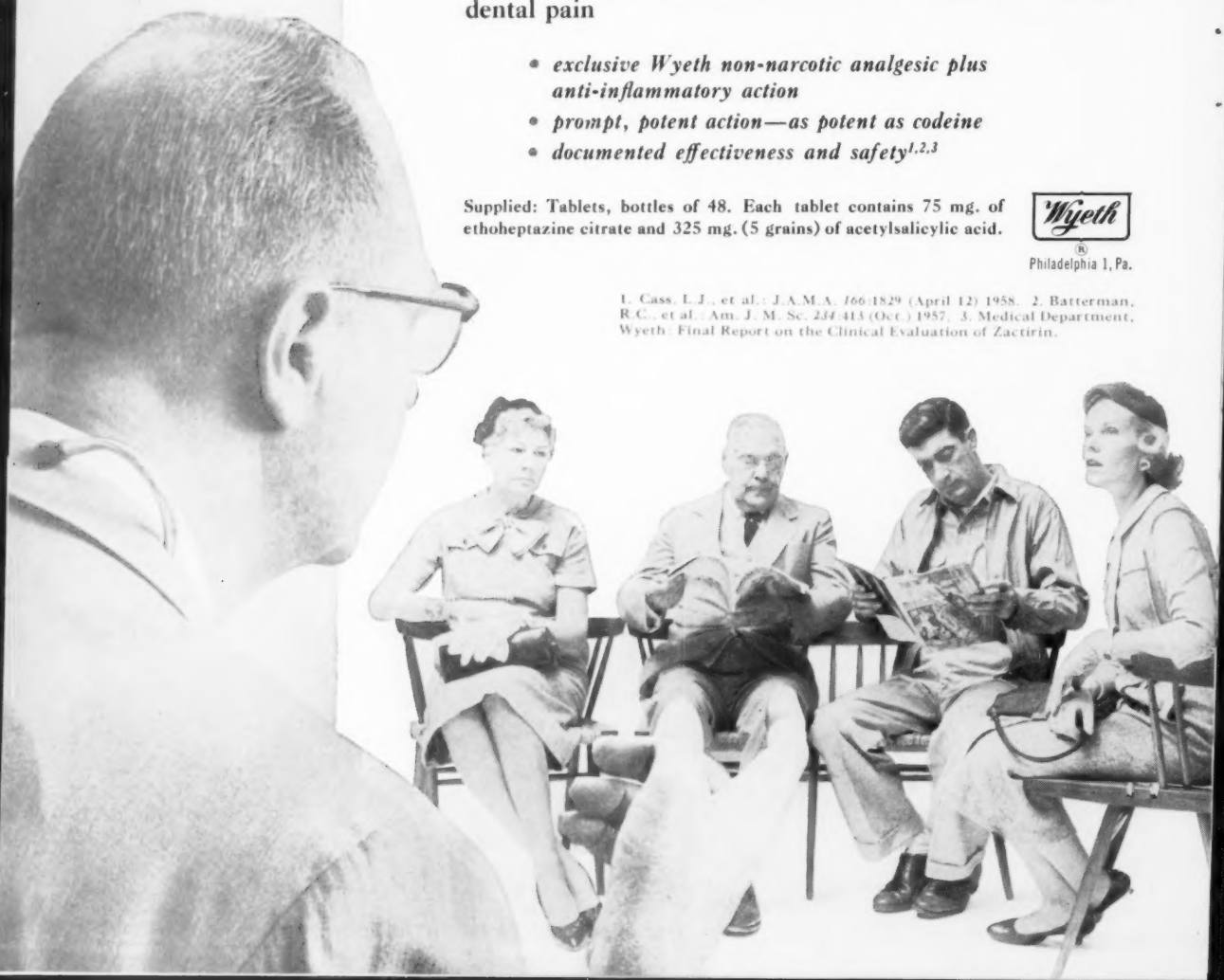
arthritis, bursitis, early metastatic carcinoma, fibrositis, grippe, herpes zoster, ligamental strain, low back pain, menstrual pain, myalgia, myositis, neuritis, pleurisy, postoperative pain, postpartum pain, sciatica, trauma, dental pain

- *exclusive Wyeth non-narcotic analgesic plus anti-inflammatory action*
- *prompt, potent action—as potent as codeine*
- *documented effectiveness and safety[1,2,3]*

Supplied: Tablets, bottles of 48. Each tablet contains 75 mg. of ethoheptazine citrate and 325 mg. (5 grains) of acetylsalicylic acid.

Wyeth®
Philadelphia 1, Pa.

1. Cass, L. J., et al.: J.A.M.A. *166*:1829 (April 12) 1958. 2. Batterman, R.C., et al.: Am. J. M. Sc. *234*:413 (Oct.) 1957. 3. Medical Department, Wyeth: Final Report on the Clinical Evaluation of Zactirin.



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season-long
immunity
to
poison ivy
or
poison oak

keep them on the job with AQUA IVY, AP®

alum precipitated pyridine-ivy extract suspended in saline solution

Good to excellent results — up to 93% of cases.[1-6]

". . . superior to either alcohol/ether or the oil resorption materials because of the ease of its administration, its concentrated dosage, and its more effective clinical results along with lessened possibility of exacerbations of symptoms. The alum precipitated material is slowly absorbed".[2]

Non-toxic — non-irritating
". . . even when administered to children . . .".[3]

HOW SUPPLIED In a combination package containing one 5 cc. vial of a 1:50 dilution (0.3 mg./cc.) and one 10 cc. vial of a 1:5 dilution (3.0 mg./cc.) (administration sufficient for at least 3 patients).

REFERENCES

1. Gaillard, G. E.: New York J. Med. 56:14, 1956.
2. Passenger, R. E., Spain, W. C. and Strauss, M. B.: J. Allergy 27: 409-423, 1956.
3. Fontana, V. J.: GP 10:47, 1954.
4. Gaillard, G. E.: J. Allergy 21:55, 1950.
5. Strauss, M. B. and Spain, W. C.: J. Allergy 17: 1-10, 1946.
6. Neidorff, H. A.: Personal Communication.

Also available as AQUA IVY, AP® TABLETS for oral prophylaxis in bottles of 100 tablets of 0.6 mg. each. Each tablet contains 0.6 mg. dry alum precipitated pyridine-ivy.

Literature on request – WRITE TO DEPT. **H1**

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the significance of Chymar® in SURGERY

Chymar helps reduce inflammation and provides rapid absorption of edema and blood extravasates that often follow surgical procedures. Chymar also benefits the patient's general condition. Pain is often relieved within hours and the need for narcotics and analgesics markedly reduced. When given at an early stage, Chymar acts as a prophylactic in helping prevent inflammation and swelling.

Dosage: Inject 0.5 cc. before operating, then 1 cc. every 8-12 hours for 24 hours, followed by 0.5 cc. once or twice daily depending on the patient's progress.

Supplied: 5 ml. multiple dose vials. Each ml. contains 5,000 Armour Units. Available as Chymar Aqueous or Chymar in Oil.

CHYMAR *Aqueous* • *crystallized chymotrypsin in sodium chloride injection*

• the only one-vial aqueous solution of chymotrypsin in pure, crystallized state • no known incompatibilities • sensitivity to chymotrypsin is uncommon • vehicle devoid of allergenic properties

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New ORAL DECONGESTANT

DRISTAN®

TABLETS

afford a new degree of symptomatic relief from

- **SINUSITIS**
- **THE COMMON COLD**
- **ALLERGIC DISORDERS**

Minimizes the Hazard of Drowsiness on the Job

as compared with other preparations containing antihistamines

Unique 3-layer decongestant tablet development offers a combination of ingredients never before possible to put into a single tablet.

DRISTAN—*Faster In Therapeutic Action*

Regular Enteric Coated Tablet	3-Layer Uncoated Dristan Tablet
Disintegrates in 3 hours	Disintegrates in 7 minutes

Dristan Decongestant Tablets—afford *a new degree of relief* from the symptoms of sinusitis, nasal allergies, postnasal drip and the common cold by releasing:

(1) A POWERFUL VASCOCONSTRICTOR . . . phenylephrine hydrochloride. This shrinks swollen sinus membranes and promotes proper drainage.

(2) A UNIQUE ANTIHISTAMINE . . . phenindamine tartrate. Rarely produces drowsiness. Controls the edema and discharge caused by offending allergens.

(3) VITAMIN C. Under body stress such as fever and infectious diseases—the normal requirements double. The daily dose of Vitamin C in Dristan is *more than twice* the recommended daily allowance.

(4) Approved APC formula . . . aspirin, phenacetin and caffeine.

Professional Supplies on Request:
Ask the detail man from Whitehall Laboratories or send request on your professional letterhead to:

References: Annals of Allergy, Vol. 6. July-August 1948. Study of a New Histamine Antagonist, The Pennsylvania Med. J., Vol. 51. Clinical Study of a New Antihistaminic Drug—Phenindamine. Dristan Clinical Study.

WHITEHALL LABORATORIES
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ACTIVATORS

Foods provide the B-complex vitamins and vitamin C which . . . as part of enzyme systems . . . activate chemical reactions in body cells . . . releasing energy . . . and synthesizing vital body compounds.

All of the needed vitamin C is easily supplied by the minimum amounts of fruits and vegetables suggested in *A Guide to Good Eating* . . . when selections are made to include the varieties suggested . . . fresh . . . frozen . . . or canned.

Thiamine, riboflavin and niacin are supplied by foods from all four groups while the minimum amounts of the foods suggested in the "Guide" do not supply the full Recommended Dietary Allowance for any of these B-complex vitamins . . . The allowances are easily met when additional amounts of these foods are eaten to satisfy calorie needs.

Vitamins B_6, vitamin B_{12}, folacin, pantothentic acid and biotin are other B-complex vitamins which must be supplied by food. Dietary allowances have not yet been recommended for these nutrients . . . considered to be adequately supplied by the variety of foods suggested in the "Guide".

All of these vitamins are water soluble. Some are partially destroyed by overcooking . . . others by sunlight. To preserve these nutrients . . . foods should be stored with maximum protection from sunlight and heat . . . and prepared with minimum water and heat.

When combined in well-prepared meals, foods selected from each of these four food groups can provide all needed B-complex vitamins and vitamin C . . . while satisfying the tastes, appetites and other nutrient needs of all members of the family . . . young and old.

USE DAILY

A GUIDE TO GOOD EATING

DAIRY FOODS
3 to 4 glasses milk—children
4 or more glasses—teenagers
2 or more glasses—adults
Cheese, ice cream and other milk-made foods can supply part of the milk

MEAT GROUP
2 or more servings
Meats, fish, poultry, eggs, or cheeses—with dry beans, peas, nuts as alternates

VEGETABLES AND FRUITS
4 or more servings
Include dark green or yellow vegetables, citrus fruit or tomatoes

BREADS AND CEREALS
4 or more servings
Enriched or whole-grain
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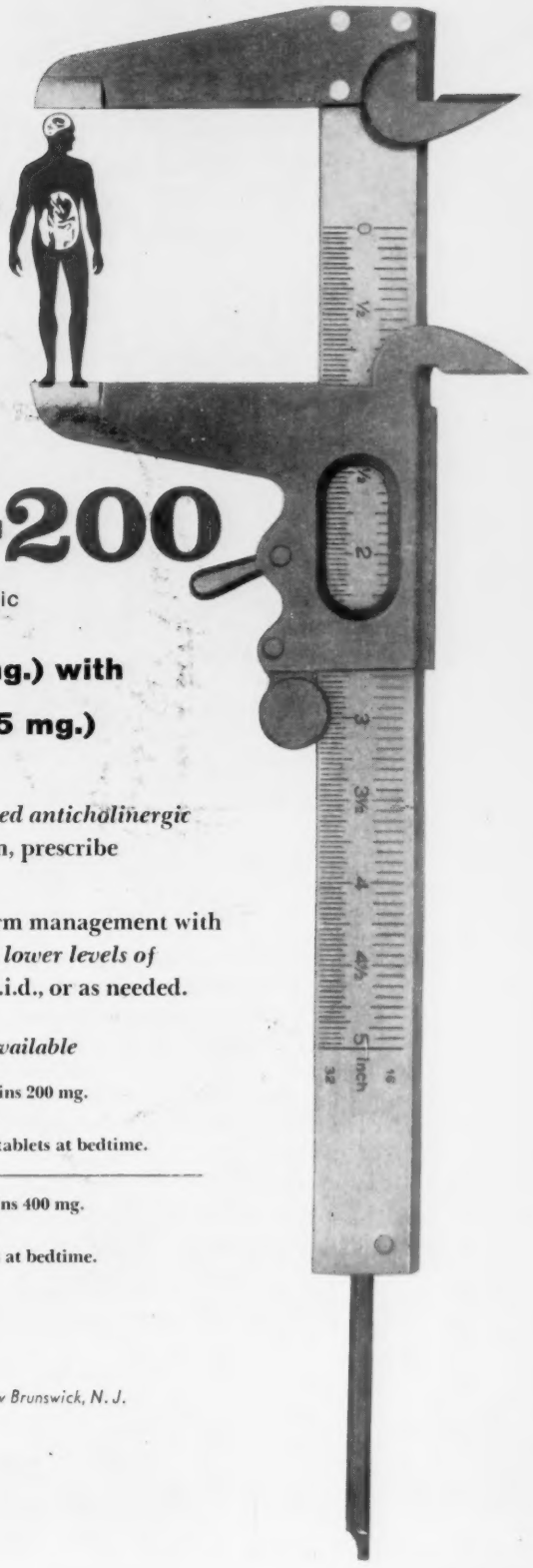

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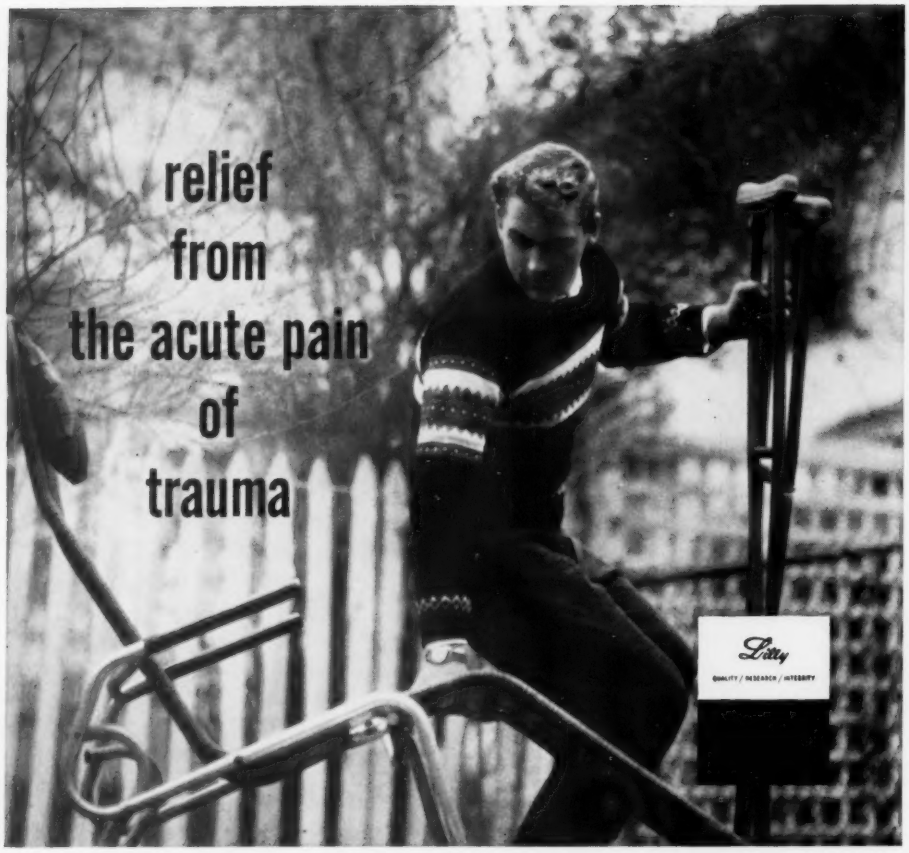

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POISON IVY DERMATITIS

- ROBERT J. LANGS, M.D.
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Controlled experiment on oral prophylaxis against poison ivy dermatitis with an alum precipitated pyridine ivy complex. Toxicity, patch test and clinical study are reported.

Dermatitis venenata from poison ivy or poison oak has been an important industrial problem in most areas of the United States. Prophylaxis against ivy poisoning utilizing a variety of extracts both orally and parenterally has been reported. American Indians[5] ate the young ivy leaves to prevent the ivy rash. Medical research in the field of oral prophylaxis against poison ivy dates back to the report of Dakin[6] in 1829. This was followed by reports by Warren,[7] Schamberg,[8] Shelmire[9] and others[10-13] which demonstrated the efficacy of oral ivy therapy. However, Spain and Cooke[13] demonstrated that most oral tinctures of ivy rapidly lose their activity and therefore questioned the practical value of the forms of therapy utilized by these men.

Gold and Masucci[11] utilized increasing dosages of ivy extract orally and reported favorable results in 17 of 25 ivy-sensitive cases, but 80% of these patients developed rather severe toxic reactions. Kligman[3,14] has administered orally large dosages of pentadecylcatechol to ivy-sensitive individuals with clear evidence of hyposensitization. However, once again, toxic effects were severe.

The chief disadvantage of the liquid oral preparations utilized by the above authors is the danger of causing fresh lesions or spreading already existing lesions, pruritis ani and gastric upset; these toxic effects have prevented general acceptance of this form of therapy.

In a previous paper, Langs and Strauss[1] reported the results of their first two studies with this alum precipitated pyridine ivy complex in tablet form. This complex was first described by Strauss and Spain[15] as a parenteral preparation and is the first ivy extract to be dispensed in aqueous solution. Successful clinical results with the parenteral form have been reported by other investigators with a large number of ivy-sensitive individuals[16,17,18] while virtually no toxic effects were observed.

In the initial studies with the tablets,[1] the experimental subjects were heavily exposed Coastguardmen. The first study, a double-blind controlled experiment carried out with 142 men, demonstrated at a level of statistical significance that such tablets provided more protection

Read at the Clinical Meeting of the American Medical Association, December 5, 1958, Minneapolis, Minnesota.

against poison ivy dermatitis than a placebo. In the second study, a later clinical study of 112 Coastguardmen, these tablets provided complete protection for 88% of men with a past history of the dermatitis and provided good protection for another 7% who had only minimal lesions. Side effects were minimal.

This paper reports further studies with this prophylactic agent® and is divided into three sections: (1) toxicity studies in animals and humans, (2) a study of 16 ivy-sensitive subjects who were patch tested before and after tablet ingestion and (3) a clinical study of 106 patients, adults and children, of whom 68 had a past history of poison ivy dermatitis, and who were given Aqua Ivy Tablets by 10 physicians.

Toxicity Studies

Guinea Pigs: Eight guinea pigs were each fed four tablets daily for 16 days. On a weight basis this is 600 times the human daily dosage. Four pigs from the same litter were retained as controls. The guinea pigs remained healthy in appearance, gaining weight and maintaining a sleek, glossy coat of hair.

Before the animals were sacrificed, they were each patch tested with the 1-20 and 1-50 concentration of pyridine ivy. Previous studies[2] had shown that sensitized pigs will react to a patch of 0.02 ml of these concentrations whereas normal pigs will not react. The 24 and 48 hour test sites were completely negative, demonstrating lack of sensitization.

The animals were sacrificed at the end of three weeks and examined both grossly and microscopically. All organs, including the kidneys, liver and stomach were grossly normal. Microscopic examination of the kidneys showed no abnormalities.

*Humans**: Thirty subjects, 11 children and 19 adults, were given one to eight tablets daily during acute and chronic episodes of poison ivy dermatitis.

A careful check of signs and symptoms was made in order to detect evidence of toxicity or exacerbations of lesions. Table I shows the results of this study. It demonstrates the absence of side effects, toxicity or exacerbation of lesions in these patients.

The data even suggest that the drug accelerated the healing of the lesions. In particular, the acute aspects of the lesions, the erythema and itching, improved within four days in all but two cases. Almost all of these patients showed these changes within 24 to 48 hours.

It is also of interest to note that 19 of 22 patients with past ivy lesions felt that healing had been quicker and less uncomfortable with this tablet therapy than in past years without it. The results were comparable for the 22 patients with acute lesions and the eight patients with lesions four or more days old. The results were also quite similar for the 17 patients who took one or two tablets daily and the 13 patients who took from three to eight tablets daily.

In the patch test study to be described in the next section, 16 subjects took these tablets for prophylactic therapy. Before and after tablet ingestion, urine samples were analyzed for albumin and were examined microscopically. These urinalyses were negative before and after tablet ingestion in 15 subjects. One subject who had no preliminary urinalysis, had a very faint trace of albuminuria after tablet ingestion.

TABLE I.
RESULTS OF TOXICITY STUDY ON 30 INDIVIDUALS WITH DERMATITIS VENENATA*

Group	Lesions Present Before Treatment: Systemic Vesiculation	Systemic Reaction	Weeping	Erythema	Itching and Discomfort	Condition After 4 days of Tablet Therapy
22 subjects (Generalized or Severe Lesions)	16	2	6	19	20	Improved
	6	1	8	1	0	No change
	0	0	7	0	1	Worse
8 subjects (Mild or Moderate Lesions)	7	0	6	7	8	Improved
	0	0	0	0	0	No change
	0	0	0	0	0	Worse

*Dosage: one to eight tablets daily.

The Patch Test Study

Materials and Method: Sixteen subjects participated in this study. All had a history of poison ivy dermatitis prior to tablet ingestion, and sensitivity was confirmed in all by means of a positive patch test with poison ivy leaf extract.* Each subject adhered to the following dosage schedule: one tablet every other day for two weeks, then one tablet daily for two weeks, then two tablets daily until approximately 180 additional tablets were ingested (*i.e.*, for approximately three months). The exact number of tablets ingested is given in Table II; no subject took less than 170 of the 0.6 mg tablets.

Immediately following the completion of tablet ingestion, the following tests were performed: (1) a repeat patch test with poison ivy extract, and (2) a clinical exposure, performed by

†In all studies reported here, 0.6 mg Aqua Ivy Tablets, supplied by Syntex Chemical Company, Inc., 10 E. 40 St., New York City, were utilized.

*The assistance of Dr. Patrick McGlaughlin, Captain, U. S. Army, is gratefully acknowledged.

*All patch tests were performed as follows: A fresh 10% alcoholic ivy extract was prepared from the dry leaves and one drop of a 1 to 10 dilution from a 26 gauge needle was placed on a one-quarter inch blotting paper disc, placed on the upper arm and secured with a band-aid whose central area was covered with cellophane. After 24 hours, the patch was removed and the area washed with soap and water. The reaction was read 48 and 72 hours after the original application.

TABLE II.
PATCH TEST STUDY

Subject	Number Tablets Ingested	Pretablet Patch	Immediate Posttablet Patch	Six Months Posttablet Patch	12 Months Posttablet Patch
1.	190	marked	slight	absent	absent
2.	186	moderate	negative	negative	absent
3.	192	slight	negative	negative	negative
4.	170*	moderate	negative	negative	negative
5.	176	moderate	negative	negative	absent
6.	188	moderate	slight	absent	slight
7.	200	marked	negative	slight	slight
8.	180	moderate	negative	absent	absent
9.	186	marked	slight	slight	slight
10.	196	moderate	slight	slight	negative
11.	188	slight	negative	negative	negative
12.	200	marked	moderate	moderate	absent
13.	200	marked	slight	negative**	slight
14.	170	marked	moderate	absent	absent
15.	200	marked	negative	absent	absent
16.	188	moderate	slight	slight**	negative

Reactions were rated as:

Marked: Reaction is larger than size of the disc and includes vesicles or severe erythema.

Moderate: A lot of erythema and/or one or two vesicles; reaction confined to disc area.

Slight: A minimal erythema confined to the area of the disc.

*Tablet ingestion interrupted for seven days because of pneumonia, and then resumed.

**The patches at six months posttablet ingestion for these two subjects were applied with the alcoholic ivy extract already dry.

brushing one leg several times with a muslin bag containing a large quantity of pulverized dried poison ivy leaves.

In addition, two further patch tests were performed, six months and one year after tablet ingestion had been completed. Eleven of the 16 subjects underwent the first retest while nine of the 16 subjects underwent the second.

Results: The patch test results of this study are outlined in Table II. Comparison of patch test results before and after tablet ingestion reveals that in all subjects there was a decrease in patch sensitivity, demonstrating the development of hyposensitization. Eight of the 16 subjects (two marked patch-reactors, four moderate patch-reactors, and two slight patch-reactors) had patch tests which became negative immediately after Aqua Ivy Tablet ingestion.

Six months after tablet ingestion had been completed all 11 individuals who were retested maintained their relative hyposensitization. Ten of the 11 had the same patch reaction as obtained immediately after completion of tablet ingestion, including five subjects who remained negative. One of the 11, originally a marked reactor, then a negative reactor, was a slight reactor to the third patch (No. 7).

Twelve months after tablet ingestion had been completed, these subjects were still relatively less sensitive to the patch test than at the onset of the study. Three subjects remained negative to the test, three became negative and three had a slight reaction. Once established, hyposensitization, as measured by this patch test, appears to be stable over a period of a year.

Exposure to the dried leaf produced a mild and transient dermatitis, lasting 24 hours and requiring no medication, in one of the 16 subjects (No. 15). This subject was originally a marked reactor and had been negative to patch test after tablet ingestion.

Only one subject reported a spontaneous episode of poison ivy dermatitis (No. 4), and this episode did not occur during the summer of tablet ingestion, but during the following season when these tablets were not taken. It was a mild lesion, lasting two days and not spreading. Previous lesions had been rather severe.

Side Reactions: Two possible side effects were reported. The first consisted of a three-day episode of mild nausea and diarrhea. The fact that therapy was reinstituted immediately after the episode without subsequent side reactions suggests that this was not of drug origin.

The second side reaction consisted of a few small vesicles in the web of the fingers and occurred while the subject (No. 7, a marked reactor) was taking one tablet daily. Tablet ingestion was not interrupted and the mild dermatitis disappeared spontaneously, without therapy, in three days. This rash did not recur.

This is a not uncommon side reaction to antigen prophylaxis of this sort, but it is of importance to note that this occurred only once in the 16 proved sensitive subjects.

The Clinical Study

Clinical Subjects: Ten clinicians selected 56 patients with a past history of poison ivy dermatitis from their practice and gave them Aqua Ivy Tablets. All of these patients had been treated by the physician himself for the dermatitis within the past two years. There were 30 adults, all of whom took the tablets according to the dosage schedule utilized in the Patch Test Study (Vide supra, Part II), and 26 children, some of whom followed the adult schedule and some of whom utilized one-half the adult dosage.*

Exposure, as estimated by the patient, was recorded for these 56 subjects as was the exact number of tablets ingested at the time the data was collected (Table III). The period of observation was four months, July through October.

In addition, 50 members of the staff of the Boy Scout Camp for the Allegheny Council, Pittsburgh, (men and boys, ages 13 to 25) took these tablets as prescribed for adults during the nine weeks of July and August while they were at an ivy-infested camp. Of these, 12 subjects had a past history of poison ivy dermatitis. Each took approximately 100 tab-

*Children on the half dosage schedule took one-half a tablet every other day for two weeks, one-half a tablet daily for two weeks, then one tablet daily for three months.

TABLE III.
THE CLINICAL STUDY

No. of Subjects			Degree of Exposure*					
Adult	Children	Number of Tablets Ingested	Almost Daily	2-4 Times Per Week	Once Every 1-2 Weeks	Once Per Month	Less Than Once per Month	Occurrence of Poison Ivy Dermatitis
19	13	160-200	9	15	3	2	3	2**
5	2	120-159	3	1	1	0	2	0
3	4	80-119	1	1	0	3	2	0
2	4	40-79	0	2	1	1	2	0
1	3	0-39	2	1	0	0	1	0
30	26		15	20	5	6	10	2

*Period of observation was from July through October.
**These cases occurred during the 3rd and 4th weeks of tablet ingestion.

lets in all and were exposed several times each week to the ivy plant.

Results: The results in the 56 patients of the 10 physicians are outlined in Table III. Twenty-four adults and 15 children took 120 or more tablets while eight children receiving one-half the adult dosage took 40 or more tablets. Ten subjects stopped tablet ingestion when exposure no longer occurred and six subjects began tablet ingestion late in the study and were continuing the prophylactic series at the time the data were collected. Forty of the 56 subjects were exposed to the poison ivy plant at least once each week — 15 were exposed almost daily.

Two of the 56 patients developed poison ivy dermatitis during the study. The first patient had a mild episode of the dermatitis consisting of a few isolated blisters which were transient and did not require therapy. This episode occurred during the third week of tablet ingestion. There was no recurrence after continued tablet ingestion, despite further exposure. The second patient had an episode of poison ivy dermatitis four weeks after tablet ingestion began, in which he had a palm-sized rash of short duration; during the previous 10 years he had always had a far more severe dermatitis.

No camper or counselor who took these tablets had an episode of dermatitis while approximately 20% of those counselors and campers who did not take them had some degree of the dermatitis.

Thus, there was an incidence of two episodes of poison ivy dermatitis in 68 subjects with a past history of poison ivy dermatitis (3%). After four weeks of tablet ingestion, all 62 "sensitive" subjects had gained protection against the ivy dermatitis.

Side Effects: One subject reported transient nausea for two days, but this seems to have been incidental. Of note is that one patient was an "atopic child" who showed no untoward reaction to the ingestion of the alum precipitated pyridine ivy complex at the full dosage level.

Comment

The results of the patch test and clinical studies appear to demonstrate the effectiveness of this material as a poison ivy prophylactic. Evidence of hyposensitization was found in the Patch Test Study. Of note is the fact that hyposensitization as measured by patch testing was maintained for at least 12 months after tablet ingestion was completed. This suggests a maintenance of hyposensitization which will be further studied.

This finding is in marked contrast to those reported recently by Kligman[3] in which pentadecylatechol was utilized for oral prophylaxis. He found that hyposensitization lasted no more than six to eight months and usually lasted considerably less time than this maximum period. To account for this difference, one must consider the fact that his prophylaxis was carried out with a different drug and that our methods for measuring hyposensitization were different. Further work is needed to clarify these differences in findings.

In the clinical study, the prophylactic agent was 97% effective clinically in exposed adults and children with past histories of the ivy dermatitis. Of course, one must have reservations about purely clinical data of this sort since one episode of ivy dermatitis will make the individual cautious about further exposure to the plant. Also, a past history of poison ivy dermatitis in no way proves that the individual is sensitive at a later time. In spite of these variable factors, the results remain striking. It has been shown by Keeney, *et al*,[4] that in those subjects who have a past history of poison ivy dermatitis, 70% react positively to patch tests. Thus one would expect a considerably higher incidence of poison ivy in similar nonprotected patients. This was demonstrated in our first study[1] in which our subjects who received a placebo had a significantly higher incidence of poison ivy lesions than those who took the drug.

A possible explanation of our results may be that the pyridine ivy complex begins to hyposensitize early in the course of tablet ingestion, producing a relative clinical "immunity" in a matter of four to six weeks. Our first study[1] also suggested this idea.

Toxicity did not appear in guinea pigs despite the use of 600 times the equivalent of human daily dosage. The guinea pig study confirmed our earlier data in humans[1] that ingestion of these tablets does not sensitize nonsensitive subjects. The toxicity study in humans, rather

than demonstrating exacerbation of lesions, suggested that the tablets accelerate healing of poison ivy lesions.

Side effects in the clinical studies were minimal. There were two questionable episodes of nausea and one dermatitis of a very mild and transient nature which occurred early in tablet ingestion.

Summary

Eight guinea pigs were fed 600 times the human dosage (by weight) of Aqua Ivy Tablets for 16 days. Before sacrificing the animals, they were patch tested and found negative, demonstrating the absence of sensitization. Post mortem examination of these animals was entirely negative.

Toxicity studies in humans with poison ivy lesions, utilizing one to eight tablets daily, gave no evidence of exacerbation of lesions or other side effects but was suggestive of enhanced healing.

In the prophylactic studies with human subjects, side effects were minimal and consisted of two questionable episodes of nausea and one episode of mild dermatitis.

Sixteen subjects who were ivy-sensitive by history and positive patch test, took a course of these tablets for prophylactic treatment. Immediately after tablet ingestion was completed, all subjects showed some degree of hyposensitization as measured by patch testing; eight subjects became patch-negative. Only one of the 16 subjects contracted poison ivy dermatitis when exposed to dry ivy leaves and this was a minimal dermatitis. Repeat patch tests six months and 12 months after the completion of tablet ingestion demonstrated that patch-test hyposensitization had been maintained.

Forty-two adults and 26 children with a past history of poison ivy dermatitis also received prophylactic therapy. Exposure ranged from almost daily to once a month, 52 being exposed at least once a week. The incidence of poison ivy lesions in this group was 3%, considerably less than would be expected in a similar unprotected group.

References

1. R. Langs and M. B. Strauss: Oral Prophylaxis Against Poison Ivy Dermatitis With Aqua Ivy Tablets (Alum Precipitated Pyridine Ivy Extract). I. A Controlled Experiment and Preliminary Clinical Report. *J. Allergy* 30:130, 1959.

2. R. E. Passenger, W. C. Spain and M. B. Strauss: Aqua Ivy: Toxicity Studies on the Guinea Pig and Treatment of Sensitive Cases. *J. Allergy* 27:409, 1956.

3. A. M. Kligman: Hyposensitization Against Rhus Dermatitis. *A.M.A. Arch Derm.* 78:47, 1958.

4. E. L. Keeney, S. Sunday, L. N. Gay and K. Lynch: Poison Ivy Dermatitis. *Bull. Johns Hopkins Hosp.* 69:482, 1941.

5. M R. Gilmore: The Use of Plants by the Indians of the Missouri River Region. Bureau of Am. Ethnology, Smithsonian Institute, Washington, 33rd Annual Report, pp. 43, 1911-12.

6. R. Dakin: Remarks on a Cutaneous Affection Produced by Certain Poisonous Vegetables. *Am. J. Med. Sc.*, 4:98, 1829.

7. L. E. Warren: The Poisonous Principle of Rhus. *Brit. Pharm. Jour. and Pharm.*, 29:531, 1909.

8. J. F. Schamberg: Desensitization of Persons Against Poison Ivy. *J.A.M.A.* 73:1213, 1919.

9. B. Shelmire: The Poison Ivy Plant and its Cleoresin. *J. Invest. Dermat.* 4:337, 1941.

10. L. Goldman: Oral Prophylaxis for Poison Ivy Dermatitis in Children. *Am. J. Dis. Child.*, 64:241, 1942.

11. H. Gold and P. Masucci: Oral Prophylaxis Against Poison Ivy. *J. Allergy* 13:606, 1941-42.

12. J. P. Besser and J. Urback: Peroral Prophylaxis of Poison Ivy Dermatitis. *Ann. Allergy* 10:169, 1952.

13. W. C. Spain and R. A. Cooke: Studies in Hypersensitiveness. XXVII. Dermatitis Venenata: Observations Upon the Use of a Modified Extract from Toxicodendron Radicans. *J. Immunol.* 13:93, 1927.

14. A. M. Kligman: Poison Ivy (Rhus) Dermatitis. *A.M.A. Archives of Dermatology*, 77:149, 1958.

15. M. B. Strauss and W. C. Spain: Studies on Poison Ivy and Other Dermatitis Producing Plant Parts Wherein Active, Resinous Principles are Suspended in Aqueous Solution. *J. Allergy* 17:1, 1946.

16. G. E. Gaillard: Poison Ivy: A Summary of One Hundred Cases Treated with Aqueous (Alum Precipitated Pyridine) Extract. *J. Allergy* 21:55, 1950.

17. G. E. Gaillard: Fundamentals of Modern Allergy; The Modern Treatment of Poison Ivy. *New York State J. Med.* 56:2255, 1956.

18. R. E. Passenger, W. C. Spain and M. B. Strauss: Aqua Ivy: Toxicity Studies on the Guinea Pig and Treatment of Sensitive Cases. *J. Allergy* 27:409, 1956.

It's All Mental

Hunger is regulated by the area of the brain known as the hypothalamus, which in turn is triggered by the body's utilization of carbohydrate, Jean Mayer, M.D. reported on April 15,1959, at the annual meeting of the Federation of American Societies for Experimental Biology in Washington, D. C.

Dr. Mayer, of Harvard University School of Public Health, said that studies in the rat showed that stimulation or inhibition of stomach contractions takes place after changes in carbohydrate have occurred in the animal. Surgical destruction of the ventromedial area of the hypothalamus eliminates the effects of such changes on stomach contractions, particularly those due to the hormone, glucagon. These findings are a striking confirmation of the existence of a glucostatic mechanism in the regulation of food intake.

A review of the antidiabetic compounds and the results of clinical experience with these sulfonylurea compounds in the treatment of diabetes.

Antidiabetic Compounds

• CARL A. HEDBERG, M.D.
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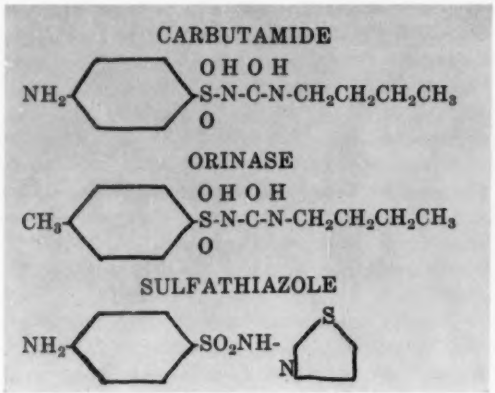
Chicago, Illinois



The first clinical observations of hypoglycemia induced by the action of a sulfonamide were made by Janbon in 1942, in treating typhoid patients. Loubatières, in 1946, after experiments, proposed using a sulfonamide for the treatment of diabetes. In October, 1955, Franke and Fuchs described their clinical results with BZ 55 (carbutamide); and it was after this that experimental work and study began in this country. Carbutamide (BZ 55 - Lilly) was the first agent used, followed by Orinase (tolbutamide) of the Upjohn Company (see formulas).

To date, the only known pharmacologic effect of tolbutamide (Orinase) is its blood sugar lowering action. In man, after a three gram dose, the blood sugar usually falls 20% to 30% in one to four hours, and returns to the previous level in 12 hours. It does not have an antibacterial action and has no effect on the thyroid gland. The propyl thiourea compounds caused considerable hyperplasia of the thyroid gland.

The mechanism of action of sulfonylurea compounds involved in lowering the blood sugar has not been definitely decided. There are four theories, as listed on Table I.

The first hypothesis is favored as the mechanism of action of the sulfonylurea compounds, *i.e.*, direct stimulation of Beta cells to secrete more insulin. This is evidenced by Beta cell degranulation during the action of sulfonylureas. There is some support for theory number three.

Insulinase is a proteolytic enzyme elaborated the pancreas and liver which inhibits or degrades the action of insulin.

Glucagon is a proteolytic enzyme with a hyperglycemic action. It is thought to be formed in the Alpha cells of the pancreas, although this is open to question.

Orinase is excreted in the urine as a carboxyl derivative of the methyl group on the benzene ring, being oxidized to a carboxyl group. This derivative is highly soluble in an acid urine, thus minimizing the possibility of crystalluria, which can occur with sulfonamides excreted usually in acetylated forms.

A sulfonylurea compound does not act in the manner of insulin and, therefore, its use does not constitute substitution therapy, since it is ineffective in the control of postpancreatectomy diabetes. At present, the accepted indications for an oral antidiabetic agent are adult obese diabetics, over 40 years of age, who developed diabetes after the age of 40, and whose daily insulin requirement does not exceed 30 to 40 units. Of course, the obese diabetic who will cooperate and respond to dietary control with weight loss usually does not need insulin or an oral agent. On the other hand, the obese patient with uncontrolled diabetes who stubbornly resists attempts at weight reduction is a candidate for oral therapy. Physical handicaps, such as impaired vision, advanced age and tremor, may constitute an indication for oral treatment. Then, there is the group who refuse insulin.

TABLE I.

Mode of Action Theories

1. Stimulates Beta cells in pancreas to secrete more insulin.
2. Destruction of Alpha cells in the pancreas with inhibition of glucagon production.
3. Blocks release of glucose from liver.
4. Inhibits the destruction of insulin through the inactivation of insulinase.

Presented before the 41st Meeting of the Surgical Association of the Rock Island Lines, October 31, Dallas, Texas.

The oral agents should not be relied upon for the treatment of emergency conditions, such as acidosis, ketosis, surgery and infections. At the present time, the consensus is that sulfonylurea compounds are of little value in juvenile diabetes and should not be employed. These agents, likewise, should not be used in brittle diabetics, or in patients with a history of coma.

To evaluate responsiveness to Orinase, you may give it a clinical trial, or following the determination of the fasting blood sugar level, give the patient three grams (six tablets) of Orinase. Check the blood sugar level in four hours. A 20%-30% drop of blood sugar constitutes a satisfactory response. Dr. Duncan of Philadelphia states that the appearance of ketonuria after the withdrawal of insulin denotes a negative result with Orinase. Our choice has been a clinical trial (Table II and Table III).

TABLE II.

Routine Work-Up and Follow-Up

1. Daily fasting blood sugar and cholesterol
2. Daily urine for sulfa crystals
3. Cephalin flocculation test
4. C. B. C.
5. Urine examination for sugar and acetone before each meal
6. Later: Blood sugar at frequent intervals
   C. B. C. monthly
   Liver function (Ceph. floc.)

I wish to add that since our study a year ago, we have had to increase the maintenance dose from one to three tablets a day in some of our patients. Untoward reactions have occurred in 3% of the cases given Orinase, as compared with a reported 9% from BZ 55 (carbutamide). These are mild, usually manifested by a rash, digestive disturbances and headache. Evidence of hepatotoxicity or hematologic complications has been rare. We have had one patient experience a renal colic. If, during this trial period, there is an absence of ketonuria and a satisfactory reduction in the blood sugar and glycosuria, the patient is responsive to Orinase. The patient is considered nonresponsive to Orinase if any of the following develops: ketonuria, increasing glycosuria or a persistent elevation of the blood sugar.

TABLE III.

Procedure

1. Diabetic Diet (as required)
2. 1st Day—Five tablets Orinase
   2 Tabs. before breakfast and supper
   1 Tab. before lunch
   ½ previous dose of insulin
3. 2nd Day—Three Tablets Orinase
   1 Tab. before each meal
4. 3rd Day—Two Tablets Orinase
   1 Tab. before breakfast and supper
5. 4th Day—One Tablet Orinase
   1 Tab. before breakfast
6. 5th Day and thereafter
   ½ Tab. to 1 Tab. daily before breakfast as determined by blood sugar and urine

Evidence, then, favors the trial of an oral agent in: (1) the obese diabetic over 40 years of age, whose diabetes appeared after the age of 40; in other words, the maturity type of diabetes, (2) the diabetic over 40 years of age with a previous low insulin requirement (30 to 40 units or less), (3) patients with physical handicaps and the aged, and (4) those who refuse to take insulin.

We have found that patients previously controlled with insulin have had a better response than those who have never received insulin. We have not used Orinase as a supplement to insulin therapy; but rather, have followed an all-or-none dictum; one or the other, but not in combination. It must be remembered that Orinase is not a substitute for insulin; and, let me stress again, it is of no value in the complications of diabetes, such as acidosis, coma, severe trauma and surgical procedures.

There are cases reported where Orinase was used with insulin and decreased markedly the insulin requirement. In using these agents, one must be on the alert for the usual complications common to sulphonamides. Blood counts, urine analyses and liver function tests should be done at intervals. Hypoglycemic reactions have not been encountered.

We have about 100 private patients taking Orinase, and we have had a favorable response in about 68% of the cases given a trial. This is after a deduction of 6% secondary failures.

I have devoted my discussion to talbutamide (Orinase), which today is the only council accepted oral antidiabetic compound. No drug has ever been subjected to such extensive investigation as Orinase. In 1957, there were 20,000 patients on this sulfonylurea compound; and in 1958, this figure has increased to 300,000. Other compounds are under investigation. The Lilly Corporation is experimenting with two agents since the withdrawal of carbutamide. The U. S. Vitamin Corporation is about ready to release an oral hypoglycemic agent called DBI. This is not a sulfonylurea. It can be given orally. Its mechanism is not known, but it does not stimulate pancreatic insulin production. Its usefulness is limited by gastrointestinal symptoms, mainly nausea. Chlorpropamide is a new sulfonylurea, effective in single daily doses and has a greater potency than Orinase. It is available as Diabinese from the Pfizer Company.

Oral antidiabetic drugs have opened an entirely new method of management of the diabetic. The future in diabetes is bright, and the management of the diabetic, it seems, is going to be quite different in the future.

道福真界危險

The following article is reprinted from the Chinese Medical Journal, November, 1958. It illustrates how industrial medicine is practiced (and dictated to) in a Communist nation. The article should be an effective argument to those who believe that the discipline of medical science can always remain aloof from politics and control, by laymen, through the state.

The Fight to Save Steel Worker Ch'iu Ts'ai-K'ang's Life

A summing-up report by the Shanghai Second Medical College Committee of the Chinese Communist Party.

The process leading to the saving of the life of Ch'iu Ts'ai-K'ang, steel worker of the Shanghai Third Steel Mill, who was burnt by molten steel, was a process of grave and intense struggle between the proletarian and bourgeois medical conceptions and between proletarian and bourgeois therapeutic methods. The outcome of this struggle has proved, once again, that a proletarian party, and only such a party, is capable of leading every kind of work, including the extremely exacting science of medicine; that today, even in the seemingly most complicated work of healing, only by departing from individual effort alone and following the mass line can more and better results be gained faster and more economically; that the social picture in our country today has undergone profound changes and the lofty style of communism of "one for all and all for one" and the spirit of cooperation are fast developing; and that the potentialities in medical and health work are infinite, and should and can produce greater leaps forward.

The Intense Struggle Unfolds

Could the Final Findings and Figures in the Literature by Authorities in Capitalist Countries Be Surpassed?

At 2:30 in the morning of May 27, 1958, resident doctors shook their heads hopelessly when three emergency cases of steel workers burnt by molten steel were brought in. These were Ch'iu Ts'ai-K'ang, with 89.3% of his body surface burnt, Liu Ssu-Hsiao with 94%, and a third with 20%. The reason for this grave prognosis was that Evans, the American and world authority on external wounds, had stated that the mortality was 85% when the burn exceeded 50% of the body area, and 100% when it exceeded 70%, as exemplified by his own 11 cases. It was held, therefore, that survival was impossible with burns beyond 80% in area.

Although a consultation of all resident doctors and many doctors from other hospitals was at once summoned, a feeling of hopelessness prevailed. The doctors at the consultation unanimously predicted an unfavorable prognosis. At this crucial moment, a message was received from the Party Committee of the Shanghai Third Steel Mill praising the work already done and pleading, for the sake of steel production and in order not to disappoint the workers of the whole mill, to save the wounded workers at all cost. The Party Committee of the Shanghai Second Medical College analyzed the ideologic state of the doctors, and correctly pointed out that what could not be done in capitalist countries we could do, and what the capitalist literature did not record we would record. This is possible because our social system and theirs differ. The people burnt there are the exploited workers. The capitalist whose only concern is

Reprinted from *Chinese Medical Journal*, November, 1958.

for profits and more profits will most certainly not expend money and energy to save a worker. No more would the intelligentsia who serve the capitalists. Ours is a country where the working class is the master. Ours is a hospital the sole aim of which is to wholeheartedly serve the working people. For the sake of our steel production, we must try every possible means to save these steel workers.

The letter from the steel mill and the Party Secretary's words startled the doctors into a new frame of mind and pointed out to them the course they had to take. They also gave them confidence in success. Things then started moving. Forty-odd doctors covered in one morning all the available literature accumulated over scores of years on burns and decided on 15 alternative methods of treatment. The doctors quickly passed over from a state of stupor into a state of activity, devising ways and means of saving the patients. They said that the general line for socialist construction through the Third Steel Mill's Party Committee's message and the analysis of the College Party Committee, had roused them and made them feel that in times like these when industry and agriculture were all taking tremendous leaps forward, doctors also should and could work miracles.

As long as the will to work miracles exists, miracles will happen.

The Main Problem Is Grasped

After the patient's period of shock was over, the doctors discovered *B. pyocyaneus* in his blood stream. This is a very active and potent type of bacillus which, if not controlled in time, could easily cause septicemia and certain death. The only existing drug for treating *B. pyocyaneus* infection is polymyxin. But, according to the literature of capitalist countries, animal experiments showed that polymyxin could only be administered in small doses, and generally for seven days only; exceeding this dosage might affect the kidney. The Party Committee again grasped this problem and laid it out for the doctors to study: the main problem confronting them, the major contradiction, was the threat of *B. pyocyaneus* to the patient's life. *B. pyocyaneus* infection must be controlled. As for the kidney, protective treatment should be given. The experiments recorded in the literature of capitalist countries were animal experiments. True, man is also an animal, but surely of a different caliber. Therefore their experiments did not necessarily always hold true. The results of treatment showed that although the dosage and period both exceeded the conventional ones, *B. pyocyaneus* infection was finally controlled without damage to the kidney.

After the septicemia was controlled, *B. pyocyaneus* infections were discovered again on the lower extremities. At this stage most doctors thought that amputation was unavoidable, and they were not confident that even with amputation comrade Ch'iu Ts'ai-K'ang's life could be saved. At this juncture, the Party Committee again called on everyone to seek for means of treatment. The members of the department of microbiology suggested bacteriophage treatment which had been recorded in the world literature but had not as yet been tested clinically. To obtain these specimens of phage, more than 60 students from the College combed the rural areas everyday for days, bringing back samples of feces and sewage water for isolation and culture, until the necessary bacteriophage was obtained. Bacteriophage cured the wounds of *B. pyocyaneus* infection and saved the patient from another crisis.

The successful clinical application of bacteriophage is another landmark in world medicine.

The successive use of polymyxin and bacteriophage finally controlled *B. pyocyaneus* infection.

This proved that in whatever work, medicine included, the objective condition must always be analyzed, and major and minor problems differentiated so that the major contradiction can be grasped and no efforts spared to solve it. Unfortunately, our medical workers often employ the patchwork method of organizing treatment, limiting themeslves to seeing only the part and not the whole, seeing only the malady and not the patient.

Changes Are Carefully Observed and Creative Diagnostic and Therapeutic Measures Taken.

In a burnt patient, skin grafting is another exacting and painstaking procedure after the period of shock and infection is over. In the case of comrade Ch'iu Ts'ai-K'ang, the burnt area was so exceedingly great and the degree so severe that it was necessary to first excise the burn tissue, do dermatoheterograft and then finally dermatoautograft.

As to when to excise the burn tissue, the customary period is two weeks after injury. But such a long interval often causes the wound to worsen. This has long been a problem in burns.

Ch'en Teh-Chang, a young doctor, in his round-the-clock vigil at the patient's bedside, discovered that burn tissue separated from the subcutaneous tissue before nine days. But being fettered to established medical experience, he only casually mentioned this matter to some Party members, and did not dare to suggest excising and grafting before two weeks. Finally, only upon the Party Committee's firm insistence did the doctors observe reality and advance the date of grafting.

In actually practising early grafting and devising improvements, it was discovered that even nine days was not necessary; as a matter of fact grafting could be done as soon as the patient's wounds were sterilized on admission. Thus not only were the chances of infection greatly diminished and the recovery of tissue enhanced, but the process of grafting and growing skin was also greatly shortened.

We demanded of everyone attending the patient that he should observe the minutest details, exchange views on any change in his condition, make early diagnosis, and decide on the course of treatment at every stage. New methods of treatment were first tried out on a small area. The method of rapid preparation of the wound surface receiving the graft and that of exposed grafting were first tried out on a small area, and when we found that the effect was quite satisfactory, we extended the use of these methods.

The Socialist Principle of Collectivism

Burns have always been considered a simple surgery problem, and only when they show general symptoms is it considered necessary to call into consultation the department of medicine. This practice of only considering the appearances and not the patient as a whole and of giving more local treatment and less over-all treatment used to be quite common in surgery.

In the process of treating Ch'iu Ts'ai-K'ang, our doctors gradually broke away from narrow-minded departmentalism and rid themselves of the false notions that the more a department calls in others for consultation the less capable it is and that consultations are only a means of shirking responsibility. As a result, over-all treatment came into full play.

Consultations were held daily with the departments of dermatology, surgery, medicine and urology, and the disease was considered from every aspect before the day's treatment was decided upon. Consequently, a well-known professor of internal medicine declared that the general change induced by deep burns involved all the theory of internal medicine, and a professor of dermatology likewise stated that burns involved the whole process of destruction, growth and development of the skin. Not only the departments directly involved were concerned about our progress, but other departments likewise showed great concern. There was only one vein on Ch'iu Ts'ai-K'ang's calf by which plasma transfusion and additional nutrition could be given. But prolonged use increased the possibility of thrombosis, and repeated injections also increased the possibility of damaging the vein. Then a pediatrician reminded us that there was a vein on the forehead frequently used in pediatrics for transfusion, thus giving us an additional route for fluid administration.

We paid close attention to the patient's diet, devising means of stimulating his appetite, studying his likes and dislikes, and having the dietician discuss his menu with him everyday. His ability to take nutritious and tasty foods enabled us to cut down greatly on additional parenteral food administration.

All these could not but lead our doctors to one conclusion. The closer the cooperation, the greater the talent, the more the ideas and the higher the courage. The day of working in isolation in medicine has passed never to return.

Why We Won

A Victory of Party Leadership, Irrefutable Proof That the Unskilled Can Lead the Skilled. Another Fruit Born of the General Line.

When we speak of the Party's leadership, we do not mean simply technical leadership, but political guidance of technology, not just partial aspects, but the consideration of partial aspects in their relation to the problem as a whole. What we mean by political or over-all guidance is persistency in following the mass line. We called for members of the Communist Party and the Communist Youth League to take the lead in everything and set an example in doing everything possible for the patient. We did not relax our attention to political and ideological education either among the staff or with comrade Ch'iu Ts'ai-K'ang himself; advanced ideas and actions were duly praised and backward ideas and wrong actions criticized (the nursing staff held a general meeting to criticize a nurse who refused to attend Ch'iu Ts'ai-K'ang for fear that *B. pyocyaneus* infection would be transmitted through her to her son).

When we speak here of the Party's leadership, we do not only mean leadership in political ideology, but also in method. The method is guiding the masses in the use of the Marxist-Leninist standpoint and methods in observing the changes in the patient's condition and concretely analyzing every change, deciding early on measures to be taken without being frantic when the situation worsened, or being complacent and careless when it improved.

When we speak of the Party's leadership, we do not mean pretending to know what we do not know concerning technical details, but the decisive handling of crucial problems. When it became apparent that the doctors could not break away from the established beliefs of bourgeois authorities, the Party demanded that they dare to think and speak, appealed to their self respect, and encouraged their every success

and achievement. Again, whenever they bogged down over a single detail, the Party showed them the fallacy of seeing only one finger and missing the whole hand.

The Party's leadership that we know is the close alliance of the leadership and the masses, of politics and technology, of proletarian ideology and skill. We won because of the City Party Committee's direct leadership and the ideology taught by the Central Committee's policies of the General Line.

Triumph of the Noble Virtues Possessed Only by the Working Class.

The sphere of general knowledge among senior medical workers, especially among senior doctors, is often limited. They are obsessed by their own work; they do not understand, and hold in contempt, and even deny the existence of others' labors and achievements. They very often know nothing of the lives of the workers, the peasants and the broad masses, and care even less. If occasionally some of them read books describing the lives of the people, they hesitate to believe that such things as described in *Kao Yu-Pao** and *The Young Guards*** could be true. But the living reality of the working class's noble virtues displayed by Ch'iu Ts'ai-K'ang moved them, and deeply.

When his dressings were changed, Ch'iu Ts'ai-K'ang suffered intense pain, but to the doctors he said, "Just so long as my eyes can see the steel, I don't mind the pain . . . Cure me. I'm needed in production. I can leave my wife and child, but not my furnaces."

To his wife he said, "You have brought my pay, did you pay my Party dues?"

These selfless words from a noble soul brought tears to the staff members' eyes.

Not only were these noble selfless traits displayed by comrade Ch'iu Ts'ai-K'ang, but also by other burnt patients transferred here in succession from far off places. Some were armymen, some were members of agricultural co-ops. Their heroism in the face of pain and willingness to cooperate galvanized the hospital staff into action and made them feel that for the sake of the patients, their families and the cause they worked for everything possible must be done to cure them.

As soon as news of Ch'iu Ts'ai-K'ang's fight for life appeared in the newspapers, the 300,000 steel and machine tool workers of Shanghai pledged themselves to a new target in their production leap forward as a token of welcome to Ch'iu Ts'ai-K'ang upon his return after complete recovery. Workers from other factories also sent delegates to visit him. The workers' solicitude for each other was truly moving. Sun Ts'ai-Yi, an old worker at the Shanghai Medical Appliances Factory, crossed the greater part of Shanghai on foot at night just to contribute a few of his suggestions to the making of Ch'iu Ts'ai-K'ang's revolving bed.

These facts clearly show that the noble virtues of the working class are a great and very real force. It spurred on the doctor's thinking, and made them feel more acutely the need of remolding their ideology in order to accomplish the tasks given them.

Victory of the Lofty Style of Communism, "One for All and All for One," and the Mass Line.

Ordinarily when a patient is hospitalized, he comes into contact only with a few doctors, nurses and attendants. But in the fight to save Ch'iu Ts'ai-K'ang, all of Shanghai participated, and his progress was followed closely by the whole country. The City Party Committee and the City People's Committee incessantly enquired about his condition and gave us timely advice and support. Aside from the Party's concern, the people of Shanghai were also most solicitous. Young pioneers brought the biggest and choicest apples. Cultural workers gave visiting performances. Even cadres working in the countryside came to pay visits on their furlough.

To produce on short notice a special revolving bed, inflatable mattresses, emergency drugs, nutritional drugs, etc., the workers in the Shanghai Second Plastic Works, the Shanghai Medical Appliances Factory, the Shanghai Pharmaceutical Co., Civil Airlines, and in Kuangts'e Hospital's workshop, dispensary, blood bank and laboratory, all gave their fullest support by sacrificing holidays and sleep.

All the other departments and faculties of the Shanghai Second Medical College also showed the closest concern for Ch'iu Ts'ai-K'ang. Members of the college staff vied with one another in donating blood and skin for grafting. The departments of basic medicine and clinical medicine worked in close cooperation. In order to be able to transfuse with antibiotic blood, a fourth year student and a nurses' school student voluntarily took *B. pyocyaneus*, Streptococcus and Staphylococcus vaccine injections, then waited anxiously for signs of fever, for fever would mean that the vaccine had induced the formation of antibodies so that their blood when transfused into Ch'iu Ts'ai-K'ang could increase

Kao Yu-Pao, a peasant's son who could not read and write before Liberation, is now a student at the People's University in Peking. Opportunity of education came to him when he joined the Chinese People's Liberation Army, and after only two years of classes he started to write his life-history. His name became famous all over China after three chapters of his autobiographical novel were published in a leading literary magazine in 1951.

**The Young Guards* is a Soviet novel by Alexander Fadeyev depicting the fight of a group of Soviet youths in the German rear during World War II.

his resistance to these three microorganisms.

It can be clearly seen from the above that the lofty style of communism and the spirit of cooperation are rapidly developing in our country. It can also be seen that medical and health work must and can follow the mass line.

Victory of the Party in Leading and Remolding Intellectuals to Better Serve the People.

Although for most medical workers, the Anti-Rightist Struggle and the Rectification Campaign have solved politically the question of choosing between the two social systems, still, in their actual work, they have not completely settled the questions as to how to accept the Party's leadership, how to serve wholeheartedly the working people, etc.

During the two months' fight to save comrade Ch'iu Ts'ai-K'ang, the leading role played by the Party convinced the senior doctors and they acknowledged with all their heart that: "It's true that diseases can be treated by Marxism-Leninism," and that "Without the Party, intellectuals like us could not possibly have broken out from the established rules of bourgeois experts."

One professor declared, "People call me an expert on surgery, but actually I'm only expert in a very limited part of surgery. Only the Party can analyze a problem as a whole and give overall leadership."

Others said, "When the Party first told us to save him at all cost, I thought that this was a case of laymen demanding the impossible. But as the days went by, and I saw how the Party solved problems at every crucial point, how the masses enthusiastically offered help, how Ch'iu Ts'ai-K'ang himself could not forget his steel even though his own life hung by a thread, I became convinced. I am convinced that only by relying upon the Party and the people can we intelligentsia turn our knowledge into useful strength and ourselves into useful people."

The Party led the doctors forward step by step. It involved repeated shattering of old beliefs, instilling of new beliefs, and raising of their political consciousness by degrees. This was putting into practice the Party's policy towards intellectuals. It was truly said that in this fight to save Ch'iu Ts'ai-K'ang, on the one hand, the doctors cured Ch'iu of his burns, but, on the other hand, through this curing the doctors themselves were cured: cured of their blind reverence for foreign authorities, their blind faith in textbooks, their doubts in the Party and in the masses, their unrealistic approach to problems. Another observation was that the day Ch'iu Ts'ai-K'ang recovered, some of the diseases the doctors suffered from would also have been cured. How true!

Proof That Medical and Health Work Should and Can Leap Forward.

Forward leap in medicine has encountered many obstacles. According to some people's way of thinking, "Medicine is different from industry and agriculture; it involves the life and death of human beings. Steel can be retempered, and crops can be resown, but a human life is given but once." Behind this lurks much of the bourgeois individualistic standpoint. The claim that life is no matter to tamper with only serves as an excuse for callousness towards life. "Human life is given but once" is an excuse to hide their refusal to bear responsibility to the patient and refusal to actively serve the people. Unfortunately this kind of thinking is still widespread among the medical profession.

"Can everybody treat diseases?" one doctor asked. "My bit of knowledge took me 20 years of hard work to accumulate." Behind this lurk unmeasurable arrogance, self-conceit and detachment from reality.

"The curing of disease cannot be hurried," another said. "How fast the course runs is beyond our control. In medical work, you just can't apply the more and faster stipulated in the General Line." Such self-abasement and disregard of the latent potentialities in Man are actually a desire to go to sleep in an easy chair and wake up in a ready-made communist society.

"Healing is a very complicated business," says yet another. "The changes in the human body are unpredictable. How can you plan a leap forward here?" Behind this lurks the servile idea that science has already reached its very peak, and there is nothing more to be done.

The successful treatment of Ch'iu Ts'ai-K'ang as well as the 10 or more severe burn cases has proved that the potentialities in medicine are infinite, and the possibility for leaps forward is immense. The very fact that burn surgery in such a serious case as Ch'iu Ts'ai-K'ang's was able to catch up with and exceed the current world level proves this. If it can be done in burn surgery, naturally the same holds for other departments. Therefore, the above ideas should all burst like soap bubbles.

Our Future Tasks

The fight to save Ch'iu Ts'ai-K'ang has proved that politics can play the guiding role in medical science and has also enabled us to gain some experience in how to apply political guidance. The reasons and methods should be made known to everyone and everywhere. Recently our college established departments to study hypertention, schistosomiasis and measles vaccination. In each of these departments there is a concurrent

political head. Also, communists and members of the Communist Youth League are in charge of the different research projects so as to expedite the intellectuals' and their own proletarian remolding and the advancement of technology.

A burn surgery department will be established to systematically study and sum up the political and technical experiences gained during these past two months. A training course will be opened where these experiences will be shared with other workers. This will undoubtedly contribute toward advancing burn surgery in our country. Before this, we did not do enough towards systematically summing up our experiences and making them known to others, consequently when many hospitals met with severe burn cases that they could not treat themselves, they could only transfer them to us.

We shall make it our duty to cure all burn patients henceforth with burns within 90%, at less expense and in less time. Our political work was inadequate; on the first two days of the fight to save Ch'iu Ts'ai-K'ang we did not give the necessary political guidance. Even afterwards, we did not follow up immediately with ideological education of every worker. Consequently, there were some instances of complacency and carelessness. For instance, not enough emergency drugs were prepared for general anesthesia to do grafting, so when the need arose we were caught off guard. This nearly caused complications, and unnecessarily increased the patient's suffering.

We shall take stock of the experiences gained in the fight to save Ch'iu Ts'ai-K'ang and through this educate all our workers, improve the work of the college, further temper our workers and strengthen them, and further strengthen the role of the Party organization in our college.

Sound Your "A"

Intense noise and sound and its frequency has been found to exert an effect on a number of organs including the reproductive organs. A team of researchers, Arthur M. Sackler, M.D., A. Stanley Weltman, Ph.D., and Peter Jurtshuk, Jr., Ph.D., from the Laboratories For Therapeutic Research, Brooklyn College of Pharmacy, Long Island University, New York, suggest "that high intensity auditory stimulation may alter the normal pattern of the interrelationships of the endocrine organs."

In a controlled study extending over a three week period, some 130 sexually mature male rats were divided into three separate experimental groups with a corresponding control group of equal number, matched in body weight with the experimental animals. The experimentally treated animals were subjected to five minute periods of auditory stimulation daily with a buzzer (90-95 decibels), an alarm bell (115-120 decibels) or a pure tone of 1000 cycles (115-120 decibels). The control animals were subjected to the same handling procedures as the experimental animals, however, they were not auditorily stressed. The sound conditions under which all animals were normally housed had an average background noise level of 68 decibels.

Upon the conclusion of the experimental stimulation periods, both the experimental and control animals were autopsied and the endocrine and lymphoid organs were removed and weighed.

A statistical analysis of the results revealed the following significant organ weight changes. There was a marked reduction in seminal vesicle weight; a reduction in thymus weight as well as an increase of weight in the pituitary and adrenal glands. They noted that in the course of the study "the animals subjected to the sound stress showed a marked drop in food and water intake."

They made reference to a previous study on female rats which was performed under similar research and environmental conditions. The experiments revealed that significant changes in endocrine organ characteristics were produced. These changes showed that there was pronounced diminution in the number of ripening ovarian follicles, a decrease in the hormone producing cells of the pituitary, and increase in adrenal weight and changes in the thyroid structure.

The investigators pointed out "that the difference in organ weight changes observed with different auditory stimulation raises the question as to whether or not there exists a single pattern of endocrine reaction to all forms of auditory stress."

They explained "that it is apparent from our data that no simple study of the biological effects of noise can be definitive, but that a thorough exploration of myriad variables is necessary. Our own studies reveal that differences in tonal composition of the noise, and differences in the intensity of the applied experimental stimulus may be capable of yielding differences in the biological effects of intense sound. It is highly probable, also, that such factors as the chronicity of stimulation, the species of animal selected, the continuousness or interrupted character of stimulation and the life circumstances may each contribute to the influence of intense auditory stimulation on physiologic functioning."

They cautioned "that because of the present general interest in the effects of sound upon the general population, more extensive investigations on the effects of sound on the human organism are indicated." However, they said, "it may well be that if such effects are demonstrated in man they should not necessarily be general since significant effects might be limited as in marginally fertile individuals and more important in situations where both mates may be marginally fertile."

OCCUPATIONAL CARCINOGENS

Two Reference Tables Outlining Cancer Producing Agents, their Sites and Etiology; and a Description of Lesions which May Be Associated with those Agents.

DESCRIPTION OF SELECTED LESIONS WHICH MAY BE ASSOCIATED WITH OCCUPATIONAL CANCER PRODUCING AGENTS

Lesion	Description	Etiologic Agent
SKIN		
Alopecia	Spotty loss of hair.	Arsenic, radioactive substances, radiation.
Atrophy	Skin grossly thinned and glistening in patches, associated with keratotic areas.	Pitch, tar, asphalt, radioactive substances, radiation (including ultraviolet rays).
Eczema	Dry seborrheic patches on skin.	Arsenic, asphalt, pitch, soot, tar.
Keratosis	Flat, discrete, scaly area on skin with raised pearly borders. Usually on parts of skin exposed to carcinogen, but may occur in unexposed parts, particularly about sweat glands, with arsenic.	Anthracene, arsenic, asphalt creosote, crude mineral oil, crude paraffin, pitch, sodium nitrate, soot, tar, radioactive substances, radiation (including ultraviolet rays).
Hyperkeratosis	Rough, fissured keratotic plagues with small, hard, wart-like horns, usually on hands and soles. May become nodular and ulcerate.	
Verrucae	Form of hyperkeratosis.	
Ulceration	Breakdown of keratotic lesions.	
Leukoderma	Absent pigmentation alone.	Anthracene, arsenic, asphalt creosote, crude mineral oil, crude paraffin, pitch, tar, radioactive substances, radiation (including ultraviolet rays).
Leukomelanoderma	Patchy increased and absent pigmentation of skin. Most common in areas of highest pigmentation, and may involve oral mucosa.	
Melanoderma	Increased pigmentation alone.	
Scleroderma	Dry, scaly, parchment-like skin, with enlarged pores, associated with leukomelanoderma.	Crude mineral oil, crude paraffin, radioactive substances, radiation.
NASAL PASSAGES		
Papillomas	Develop in antrum ethmoid cells, and turbinates.	Nickel carbonyl.
Polyps		
Perforation	Nasal septum.	Chrome salts.
Ulceration	Nasal mucosa.	Chrome salts.
BLADDER		
Hemorrhage, submucosal	Varying size with telangiectasis. Located mainly in trigone and about ureteral orifices.	Benzidine, beta naphthylamine and derivatives.
Papillomas	Polypous or villous, pedunculated or sessile, often multiple about trigone and ureteral orifices.	

Lesion	Description	Etiologic Agent
EYES		
Papillomas	Pedunculated, develop mainly on lids, occasionally on eyeball.	Arsenic, asphalt, creosote, crude mineral oil, pitch, tar, radiation (including ultraviolet rays).
BONES AND BONE MARROW		
Blood dyscrasias	Hyperplastic, hypoplastic, aplastic or hemolytic anemia. Thrombocytopenic purpura with spleen not markedly enlarged.	Benzol and derivatives, radioactive substances, radiation.
Bone	Periosteitis.	Beryllium.
LUNGS		
	No precancerous lesions observed.	Chrome salts. Radon Gas. Radioactive dust.

ALPHABETICAL LISTING OF RECOGNIZED AND SUSPECTED OCCUPATIONAL CANCER PRODUCING AGENTS, WITH SITES CHARACTERISTICALLY AFFECTED

Substances or Conditions	Organ or System	Class D*	Class E**
Aniline and derivatives	Bladder, ureter, kidney	D	
Anthracene, crude	Skin		E
Aromatic organic chemicals	Liver	D	
Arsenic	Skin		E
	Liver	D	
	Respiratory system	D	
	Eyelids		E
Asbestos	Respiratory system	D	
Asphalt, artificial	Skin		E
	Eye		E
Benzidine and derivatives	Bladder, ureter, kidney	D	
Benzol	Blood forming organs		E
Benzol derivatives	Blood forming organs	D	
Burns, thermic	Skin		E
Chlorinated hydrocarbons	Liver	D	
Chromates	Respiratory system		E
Coal	Skin	D	
Creosote	Skin		E
	Lip		E
	Eye		E
Estrogens	Breast (male)	D	
Frostbite	Skin	D	
Iron dust	Lung	D	

*D — Reported cases — etiology still doubtful.
**E — Established etiology.

Substances or Conditions	Organ or System	Class D*	Class E**
Irritation, chronic	Skin	D	
Mineral oil, crude	Skin		E
	Lip	D	
	Respiratory system	D	
	Eye		E
Naphthylamine — alpha	Bladder, ureter, kidney	D	
Naphthylamine — beta	Bladder, ureter, kidney		E
Nickel carbonyl	Respiratory tract	D	
Paraffin, crude	Skin		E
Pitch	Skin		E
	Lip	D	
	Bladder	D	
	Eye		E
Radiant heat	Skin	D	
Radioactive substances	Skin		E
	Lungs		E
	Blood forming organs		E
	Bone		E
Roentgen rays	Skin		E
	Blood forming organs		E
	Subepithelial connective tissues		E
	Eye		E
Shale oil	Skin	D	
Sodium nitrate, crude	Skin		E
Soot	Skin		E
	Bladder	D	
Spindle oils, aromatic	Skin		E
Tar	Lip		E
	Skin		E
	Respiratory system	D	
	Bladder	D	
	Blood forming organs	D	
	Eye		E
Trauma, chemical	Skin	D	
Trauma, physical	Skin	D	
	Blood forming organs	D	
	Mesenchymatous tissues	D	
	Eye	D	
Ultraviolet rays	Skin		E
	Eye		E

*D — Reported cases — etiology still doubtful.
**E — Established etiology.

ARTEFACTA

• FRANCESCO RONCHESE, M.D.
Providence, Rhode Island

Wounds, inflicted by the patient upon himself, are among the most baffling symptoms encountered by the physician.

McCord's[1] tale of fraudulent artefacta,* which I have repeated over and over in class, always has elicited keen interest. It is the story of a lovely young girl who defied medical intelligentsia and stayed in a hospital for two years by means of fraud. While at work, she was burned on one hand. The successfully grafted skin mysteriously would break down on the day on which the girl was to be discharged and resume work. After the fourth break and re-grafting, Dr. McCord was asked to investigate.

On the day of her fourth discharge, Dr. McCord gave the patient a bottle of thymolphthalein solution which looked like water, and instructed her to moisten the dressing with the liquid. The same day the girl returned in tears since the dressing had turned blue when she repeated her trick of putting caustic soda on her hand. Thymolphthalein in contact with an alkali becomes blue. The solution of an etiologic mystery is the highest reward enjoyed by the physician.

Brazen malingering as illustrated in Figure 1 is rare. It is a demonstration of low intelligence or of psychopathy. The average intelligent worker does not need to punch a chemical hole to obtain compensation. It is easy to keep an eczematoid dermatitis going *ad infinitum* by simply doing some dishwashing without gloves before going to the doctor. This is a fraud as brazen as the other. The only difference is that it is done intelligently. A jury will never grasp

[1] C. P. McCord, "Hannah's Hand," *A Blind Hog's Acorns* (Chicago: Cloud, 1946).

*Fraudulent artefacta (malingering) may be defined as an artifically induced lesion, self-inflicted to deceive for gain, for the avoidance of work or duty, or for pleasure (psychopathy). Self-induced lesions, also caused artificially, but not to deceive, are made to permit or facilitate work. An example is the comb-shaped fingernails of Japanese brocade-weavers (Figure 6) (*A.M.A.Arch. of Derm.* 71:525 April, 1955) graciously named Onychosis Artificialis Ronchese by Goodman (*Finger and Toenails in Health and Disease*, 1957). The meaning of the term artefacta is also applicable to dermatitis medicamentosa, self-inflicted in the endeavor to shorten the course of illness (Figure 5). Another similar example would be a dermatitis produced by the use of a protective device, used against trauma to permit work (Figure 4). Trichotillomania is an artefacta, self-induced for some kind of pleasure.

Figure 1
Self-inflicted chemical burn on dorsal aspect of left hand-wrist. (A) Appearance at first visit. (B) Practically healed three weeks later. (C) Recurrence three more weeks later.

Figure 2

Artefacta by application of a caustic chemical in a 15 year old girl. It was done not for gain or to avoid duty or work. The only apparent reason was the desire to elicit the interest of doctors and nurses, for the pleasure of seeing them puzzled and feeling pity for her.

heredity, aggravation of a pre-existing disorder and similar details. The only proper judgment will be given by St. Peter when the worker presents himself at the gates.

In the case illustrated in Figure 1, even if the distribution has some features of herpes simplex, the crateriform, punched out, pitch-black ulcers immediately give the impression of self-inflicted lesions. Recovery and recurrence of the ulcers in the same place, with the same characteristics on an easily-reached area (the dorsum of the left hand, in a right-handed individual), three times in six months, the recurrences coincidental with the recovery of the ability to resume work, added support to the first impression of malingering.

After five months the case came before the Workmen's Compensation Board. The insurance had paid compensation up to the time of my report and then stopped. Compensation was denied. Serial color photographs easily demonstrated the sequence of recovery and recurrence. Descriptions without color photography would have made the demonstration of the essential pitch-black color, in the absence of systemic involvement, difficult for lawyers and a judge to understand.

During the hearing the man behaved like a moron. A few weeks later he was admitted to a mental institution.

Figure 3

An everyday problem confronting the industrial dermatologist. Chronic eczematoid fissured dermatitis of the hands. Basically hereditary and usually aggravated by contact with an occupational chemical. Household soaps and detergents will act the same way. The wise malingerer has only to do the family washing — without gloves — before examination. No one will be able to say if the dermatitis is due to the factory chemicals or to the household ones. Since the worker has the benefit of the doubt compensation may continue ad infinitum.

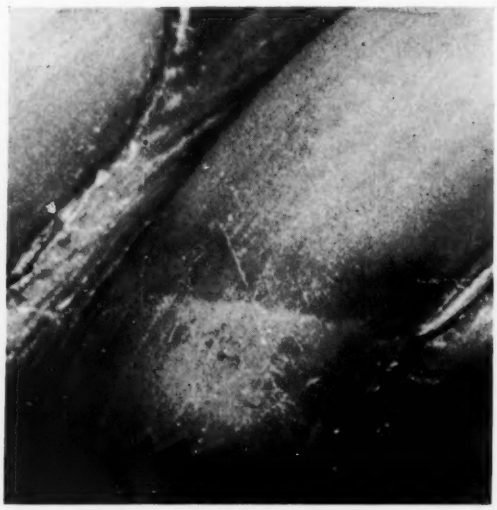


Figure 4

Artefacta induced to permit a person to work or to make work easier. Comb-like filed nail of Japanese weaver of fine brocade (Onychosis artificialis).

Figure 5
In a zipper factory, to economize on rapidly wearing-out gloves, the worker was given a roll of special adhesive tape. Applying the tape daily provoked a dermatitis, an artefacta, a self-induced disease which resulted from the desire to work and save the cost of gloves.

Figure 6
Dermatitis medicamentosa (artefacta) self-induced by applying the cork of old bottle of tincture of iodine to a pimple for the purpose of hastening its disappearance.

Summary

A case is reported of a self-inflicted chemical burn to avoid work, misrepresenting it as occupational and, as such, receiving compensation. Frequently this behavior is a manifestation of a mental disorder.

Illustrations of various kinds of artefacta are added. The one induced to enjoy puzzling the diagnostician, the artefacta (medicamentosa) done to hasten cure, the artefacta done to permit or facilitate work.

News on Breathing

We breathe several quarts of air each minute and in a lifetime, we may breathe in excess of a half billion times. Speaking before 3000 occupational health specialists attending the Industrial Health Conference in Chicago, H. H. Fawcett of the General Electric Research Laboratory of Schenectady, N. Y., states further that we seldom, if at all, breathe pure air which introduces problems varying from a minor to a serious nature.

On a minor scale, a problem exists yearly from dust or pollen causing rose fever or hayfever. Of a more serious nature are those unusual incidents which produce drastic results. The failure of a pressure system in an airplane at high altitudes will cause blackouts in seconds. For altitudes above 43,000 feet even breathing pure oxygen is inadequate — a pressure suit or pressurized cabin is essential. No less serious are problems when commonplace materials are overheated or burned. The kitchen range can produce sufficient smoke or toxic gases to overcome occupants.

Many different flammable chemicals that change with heat, such as plastics, fabrics, refrigerants, solvents, paints, insecticides can emit on burning or heating carbon monoxide, ammonia, cyanogen, acrolein sulfur-containing gases, chlorine, etc. A pile of newspapers smoldering in limited oxygen can give off as much as 41% of the total gases as carbon monoxide.

People engaged in fire and other rescue services are exposed to all sorts of contaminants in the air they breathe. A vigorous movement is now under way to encourage these services to use adequate respiratory protective equipment. Fortunately there is available a respiratory protective device for most known air contaminants.

FIRST AID MEASURES

in a Finnish Chemical Plant

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Efficient first aid and preparedness against catastrophes increase the feeling of security in factories where special dangers are known to exist.

Gas poisoning and other chemical dangers often threaten the workers in chemical plants. These factories must be ready for this sort of accident by having special devices on hand. Accidents and gas poisonings which have occurred in the past have helped to improve the means of prevention and first aid measures.

At first, the Finnish chemical plant Säteri Osakeyhtiö was fighting against the eye diseases caused by hydrogen sulphide. There were many of these painful conjunctive and cornea diseases, which we call "gas eye diseases," during the 1940's and at the beginning of the 1950's. By putting many powerful air-conditioning devices in the factory halls and machines and by encasing the machine and machine parts, we have at last managed greatly to decrease the number of "gas eye patients."

With new eye medicines containing, among other things, hydrocortisone we can now master these eye diseases and prevent them from getting bad as often happened earlier. Because of eye disease the patient formerly had to be off duty approximately six and one-half days, whereas now it takes only two days. Thus the patients are saved pain and sick leave.

It is a rather usual accident in chemical plants that chemicals splash into the eyes, but if the foremen and instructors keep teaching newly employed workers, such accidents can be decreased noticeably.

First aid given at the work place immediately after the accident can save the sight of the patient. Such a first aid device must be easy to handle and effective. An English-made douche device, which we have been using in Säteri Osakeyhtiö about 18 months, is fulfilling these requirements (Figure 1). On a wooden shelf there is a two-litre plastic bottle. A rubber tube connects this bottle to the eye-douche cup. In the bottle there is a solvent made according to the instructions of Imperial Chemical Industries. When the tube is opened, the solvent flows to the cup and the eye may be blinked and washed.

Our medical and security staff have been greatly concerned about the gas accidents which have occurred in our factories. In 1949 we

Figure 1
Eye Douche Device in Use

Published in the Finnish journal, *Ehkaise Tapaturmia*, No. 1, 1958.

bought a so-called carbogene bomb with a respiration device. Carbogene is a gas mixture containing 93.5% oxygen gas and 6.5% carbonic acid gas. By using this gas mixture we had such suprisingly good results in the treatment of these gas poisoning cases that in the course of the last few years we have bought nine more of them. The nurses of the company and all the shift foremen and firemen are taught to use the carbogene devices which are placed in different parts of our factory.

I would like to point out in this connection that carbogene can also be used with good results in carbon monoxide and chlorine poisoning as well as in various electrical accidents where the patient is unconscious but still breathing. If the victim of gas poisoning or electrical accident is not breathing, it is best to put him into the "Eve's" artificial respiration swing. We have two of these swings in Säteri Osakeyhtiö. Eve's swing is the safest and most effective of the artificial respiration methods. If the patient's breathing is weak and irregular, he should be put into Eve's swing and at the same time be given carbogene. For this procedure we have furnished one carbogene bomb with a breathing tube 2.5 meters long, which does not disturb the movement of Eve's swing (Figure 2).

Some years ago we made for the factory two large respiration-protection cupboards, where are stored the gas-, oxygen-, fresh air- and pressure-masks and filters for different gases which might occur in the factory. There are also smoke filters in the cupboard.

As it is important that these cupboards be always in order, the caretaking has been left to the fire brigade. Firemen inspect them daily. The doors usually are closed by seals that are easy to open. The caretaker of the cupboards inspects only those parts that have been opened.

After a serious gas accident in January, 1956, we arranged during that year three training courses in the use of these respiration devices. Department engineers, foremen, instructors, millwrights, security men and firemen were sent to these courses. Everyone had to put on the mask himself and learn to prepare the different devices for use. In 1957 two such courses were held.

Figure 2
Carbogene Can Be Given at the Same Time as Artificial Respiration with Eve's Swing

The factory has a great advantage in the fact that the firemen are trained to be ready for catastrophe cases. In the first place, an effective fire alarm alerts the firemen quickly. Secondly, the fire brigade has stretchers and other equipment. Third, they are able to manage situations calling for quick decisions and bravery. And fourth, they have had practice in handling patients without causing them any further harm. Firemen trained for catastrophe cases are able to give first aid until the factory doctor and nurses arrive at the scene of the accident.

By supplying good first aid instruments and by training as many persons as possible for catastrophe cases the feeling of security in the personnel is increased. This feeling of security is especially important in a factory where special dangers are known to exist.

Dust Device

Procter & Gamble Company uses high-speed movies as a new tool in dust control. R. J. Beaman, Industrial Hygienist for the Company, showed that when a dust leak occurs in a dust control system, it is often difficult to locate the source of leaking dust by air sampling techniques. Furthermore, many dust hood installations could be more simple if the exact dust source and its pattern were known.

High-speed photography enables one to know where the dust is coming from and where it goes. The shape of the dust cloud and dust sources due to maladjustment of equipment are readily seen.

A high-speed camera ranging from 500 to 3,000 frames per second costs approximately $2,000. When one compares the cost of hoods, enclosures and ducts, which may not be necessary, as shown by the high-speed camera, the cost of the equipment becomes negligible.

Exercise Table for Muscle Strength

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The aim of the study reported here was to determine whether an increase in the strength of selected muscle groups would occur in women given regular periods of passive exercise.

A table® adapted for furnishing passive exercise was employed in the study. This table is a modified orthopedic table with four raised, movable platforms, and an adjustable bar at the head for extension of the arms. The position of the test subject was adjusted so that first the back muscles and arms were hyperextended. The movement of certain parts of the table, alternately, stretched arm and back muscles and then allowed them to relax. The same procedure was repeated with the abdominal muscles.

The experimental subjects were selected at random with no reference to age or body build. The main factor involved in the selection of subjects was that they evince interest in the project and appear cooperative. Measurements were made at monthly intervals. The muscle strength was tested with a Newman-Myometer, an accurately calibrated hydraulic device used by physiotherapists. It measures, in pounds, the force required to overcome the resistance of muscles at a joint.

The following muscle groups were tested:

(1) The muscles of the upper anterior chest (pectorals) and stabilizers of the upper arm.

The subject lies supine on the table and extends her right arm perpendicular to her body and in the plane of the table. Pressure is applied at the wrist to resist adduction of the arm at the shoulder joint.

(2) Abdominal muscles.

The subject sits on the table with her legs extended comfortably before her. Hands are folded in her lap. Pressure is exerted against the manubrium of the sternum in an effort to force the subject backward through extension at the waist.

(3) Anterior muscles of the thigh.

The subject sits on the table but swings her right leg over the side so the leg rests on the table with the knee not supported. The leg is extended rigidly. Pressure is applied at ankle causing the leg to bend at the knee.

(4) Adductor muscles (those on the inner, upper aspect) of thigh.

The subject sits on the edge of the table with her legs dangling. The body is braced with the arms as well as by pressure of the left leg against the table. The right leg is raised from the table with the knee flexed 90 degrees. Pressure is applied to the inner aspect of the right knee to resist adduction of the right leg at the hip.

(5) Muscles of the neck and upper shoulders.

The subject lies prone and arches her head as if to look at the ceiling. Pressure is applied to the back of the head in an effort to force it down.

(6) Posterior muscles of the upper arms (triceps).

The subject lies prone and extends her left arm out rigidly, perpendicular to the body and parallel to the table. Pressure is applied at the wrist in an effort to bend the arm at the elbow. The upper arm is supported by the examiner.

(7) Muscles of the buttocks.

The subject lies prone. The right leg is held rigid and lifted off the table from the hip. Pressure is applied against the ankle to force the leg back on the table.

Measurements of the strength of the above mentioned muscle groups were made on a total of 52 women over various lengths of time. Measurements were made at monthly intervals. Prior to their inclusion in the study measurements were carried out several times, first to establish the validity of the testing method, and second, to aid in obviating improvement which might occur as a result of familiarity with the testing procedure.

In 38 of the women, the study was carried out for 10 weeks or more, while in 14 women

®Device was furnished by Slenderella Systems, Inc., Stamford, Conn.

the study period was less than 10 weeks. Passive exercise periods of one hour each were employed three times a week, on the average.

Results

The average force in pounds required to overcome muscle resistance in the 52 women at the beginning of the test period is shown in Table I.

TABLE I.

Muscles	Pounds
1. The muscles of the upper anterior chest (pectorals) and the stablizers of the upper arm.	12.4
2. The abdominal muscles.	28.0
3. The anterior muscles of the thigh.	36.2
4. The adductor muscles (those on the inner, upper aspect) of the thigh.	30.6
5. The muscles of the neck and upper shoulders.	32.2
6. The posterior muscles of the upper arm (triceps).	25.8
7. The muscles of the buttocks.	24.3

The average strength of all the muscle groups was increased as shown by Table II.

TABLE II.

Muscle Number	Last Average Measurement In Pounds	Percent Gain
1	13.9	12.1
2	29.4	5.0
3	40.4	11.6
4	34.0	11.2
5	33.6	4.3
6	31.1	20.5
7	25.8	6.2

When only those women who have had less than 10 weeks of treatment were studied, it is found that the average gain was significant in all categories (Table III).

TABLE III.

Muscle Number	Percent Gained
1	10.1
2	6.5
3	7.6
4	9.7
5	2.9
6	16.0
7	3.8

The proportion of muscle strength gain was somewhat different for each type varying from 2.9% gain in the muscles of the neck and upper shoulders to 16.9% gain in the posterior muscles of the triceps.

When only those women who had the treatment for more than 10 weeks were studied, the gains in muscle evaluation were even more dramatic as can be seen in Table IV.

Controls

Twenty-six women were used as controls. Most of these women were active in the business world. One was a domestic, another a housewife. They too, were selected without regard to age or body build. Measurements were made at monthly intervals for three months.

TABLE IV.

Muscle Number	Before Treatment Average In Pounds	After Treatment Average In Pounds	Per Cent Gain
1	9.3	10.5	12.9
2	20.6	21.6	4.9
3	25.8	29.1	12.8
4	24.4	26.9	10.4
5	23.0	24.1	4.8
6	18.4	22.5	22.3
7	17.3	18.6	7.5
Total			10.9*

*It was not possible to measure changes in volume of the muscle groups because the test subjects employed reducing diets throughout the study.

The average strength of the muscle groups in the 26 control subjects at the beginning of the test period is shown in Table V.

TABLE V.

Muscle Number	First Average Measurement In Pounds	Last Measurement Average In In Pounds
1	12.7	12.3
2	25.0	24.4
3	35.2	33.2
4	27.0	25.7
5	30.1	30.3
6	22.3	21.2
7	21.0	20.4

There was no significant change in the strength of any of the muscle groups.

Comment

Accurate measurement of muscle strength requires a maximal muscle effort on the part of the tested subject on each occasion that testing is carried out. Such maximum effort was best attained on the first test when the subject was interested and cooperative. Although individual performance varied from day to day, the performance of any single person followed a definite trend over a period of time. Hence, in the long run, the treated group showed definite improvement in muscle strength, while the control group remained essentially unchanged. Values were higher in the control group than in the treated group. They represented younger, more active and better conditioned women than the latter group. These tests did not measure function of specific muscles, but rather of muscle groups acting at joints. However, the fact that the tests were conducted precisely in the same fashion each time ensured that the same mass was being evaluated.

Summary

Passive exercise, taken at regular periods, over a span of 10 or more weeks, produces definite increases in muscle strength. The improvement is more rapid during the first 10 weeks.

A Japanese Historical Review of

RADIATION PROTECTION

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Environmental Hygiene Division, Japan
Former Member of Institute of Industrial Health

The problem of radiation hazards generated by the "new fire," explored from its beginnings to the present.

Shortly after 8:00 A.M. on the sixth of August in 1945, a United States B-29 bomber, flying at 30,000 feet, dropped one small bomb over a Japanese city called Hiroshima killing over 60,000 people in the single explosion. The colossal, disastrous effects of radiation and atomic energy created extreme anxiety and resulted in the whole problem of the hazardous effects of radiation.

From our viewpoint as Japanese, it is regrettable that the information reached the public through such an unhappy catastrophe. We hope it will be turned to benefit by making awareness of the calamity the strongest inducement toward making efforts to prevent further disaster and misfortune. We have been making the efforts so far and hope they will continue in the future.

In the common experience of many industrial and public hazards, the recognition of the hazard by experts comes first, then comes the technical effort to prevent it by some pioneers. Gradually, with the appearance of many disaster victims, and with technical developments for prevention, public interest in the problems encourages technical experts to solve them more effectively. Finally the administration enters the field with legal procedures for control.

However, in the problem of radiation protection, the process was considerably disturbed by many factors, so that intensive, even hysteric, social concern about the problem seems to have arisen from the fairly early stages, sometimes even exceeding the development of technical and scientific knowledge and research. Great anxieties and fears were based on insufficient and unbalanced information. Particularly in our country, this was the case for various reasons.

In my opinion, the effective practice of radiation protection must be based on a sufficient amount of scientific knowledge and adequate technical procedures with socially balanced decisions, and should be supplemented by qualified experts. Unfortunately, this is far beyond the situation we have at present in Japan. Therefore, there is urgent need for us to establish such conditions as fast as possible. In order to establish such conditions, it is necessary to review the historical development of radiological protection and attendant social movements.

Discovery of Radiation and the First Recognition of the Effect

In 1890, two American physicists, Goodspeed and Gennings of the University of Pennsylvania, during their experiment using a highly vacuumed Crook's tube, accidentally took the first x-ray photograph. Unfortunately they paid no more attention to it.

Five years later, on the evening of November 8, 1895, a German physicist, whose name will remain forever in the history of physics in association with the ray called Roetgen ray, encountered the same phenomenon and discovered the characteristics of the ray after diligent investigations and won the Nobel Prize. Presentation of the discovery to the public caused applause and social interest as well as scientific concern. The strong penetrability and other special physical characteristics of the ray introduced its application and availability into many fields of science and technology, and various experiments were done about *"Die Neue Strah-*

len" in many countries of Europe and America. The application of it spread rapidly to various fields of science and medicine.

A few months after the discovery, however, the irritant effect of the ray to human skin was recognized. The unsuspecting early experimenters with the new rays and the tube manufacturers, like Mr. Grubbe in the United States, were suffering from skin injuries which were designated medically as radiological dermatitis. Severe ulceration and pains developed in several experimenters, and many misfortunes were experienced. About 1896, David, of Vanderbilt University, made a fairly good film of a human skull, but epilation was caused by the long exposure. These phenomena attracted the attention of some pioneer experts in the field and the suspicion that *"Die Neue Strahlen"* may be perilous and cause great damage to the human was raised. But the marvellous character of this ray created so many triumphant results in physical and medical fields that few paid serious attention to the problem.

One year after the discovery of x-ray, the other important phenomenon of radiation physics was spotlighted on the stage of science. A French physicist, Becquerel, discovered another strange ray from the heaviest element, uranium. This new ray also had an intensive penetrability of matter, even stronger than that of x-ray. About the new phenomenon many experiments were made to find the cause and reason for it. Finally, in 1899, Pierre and Marie Curie extracted from the uranium ore two new elements, radium and polonium, which have very strong radioactivity. In the same year, Giesel discovered that one component of radioactivity was the same as an electron beam. In 1900, Willard found that radiation from radium included the same electromagnetic ray as x-ray. Then Walkhoff and Giesel in Germany announced that radium had certain physiological effects. Pierre Curie exposed his arm to the rays and incurred a skin lesion whose character was similar to that of x-ray burn. Marie Curie also received the same burn in carrying a few centigrams of radium in a metallic box. It was soon recognized that the rate of change in the skin varied with the intensity of the active ray and with the duration of the original exposure. All these phenomena, together with those of x-ray, created a new region of medical art called radiology or radiotherapeutics. Research and application of radiation and radioactivity mushroomed, and many different effects on living things were recognized. This would have led to strong precautions were the beneficial effects not so hailed and successful. Unfortunately, the case was just the reverse. Accidents were neglected and the lessons were disregarded until the number of tragic cases led to the recognition of an occurrence of cancer developed from a chronic ulcer by x-ray.

The reasons for this negligence were mainly, first, a relatively small amount of radiation was required to produce the effect they aimed at, compared with the dose by which any immediately recognizable biological effect was produced; second, the time interval which is called "latent period" was fairly long, compared with those of other dangerous accidental hazards; third, experimental conditions or application forms were quite various so that the exposure they got in these cases were greatly divergent; fourth, there were no exact measuring methods and the unit of measurement of doses to determine the true amount of exposure was quite obscure at the time; and finally, those who were engaged in radiation work were almost always persons in the medical profession who were willingly using them for their own interest and benefit.

For instance, Doctor Roentgen himself made numerous experiments with x-ray, but never received injury because he was using a protective metal box covering the tube for the purpose of obtaining more accurate results from his design for the experiments, but many others were using the uncovered tube and receiving serious injuries.

Development of Application and Increase of Injuries

As the use of x-ray and radium increased, the number of radiation injuries continued to mount among scientists and radiologists, and probably among some of their patients too.

By World War I, many different effects such as erythematous dermatitis, smarting of the eyes, epilation of hair and constitutional symptoms such as tiredness, nausea, vomiting, etc., cancer in chronic x-ray ulcer, inhibition of bone growth, sterilization, laucopenis, anemia, etc., were discovered and demonstrated in many experimenters and other unhappy victims. By 1906 it had been found out that most of the organs of the body could be altered by the x-ray. The application and use of radium in the medical field also produced many injuries to experts who devoted themselves to it. We can submit the list of victims whose names were well known and whose works were admired in the field, such as Marie Curie, Guston Dann, Fritz Giesel, Fritz Dautwitz, Nurse Schuhmacher, Heinrich Schoenberg, Dr. Holzknecht, John Edwarth, Levy Dorn, Luis Voiteau, Karl Muller, Gustaf Optiz, and so forth. Many other experts such as doctors, nurses, x-ray technicians as well as radiation physicists and chemists, filled the list with their names, and Edson stated in 1948 that approximately 100 deaths are certainly attributable to

the occupational use of irradiating apparatus or radioactive substances during the period 1890 to 1930, and that for every one of these known fatalities there are probably one or more others in which the eventual cause of death was associated with occupational radiation hazards of previous years.

Between 1910 and 1915, important technical developments in the x-ray tube were made by Couridge. The Couridge tube could regulate the quantity and quality of x-ray more easily and effectively and it introduced higher energy radiation in greater amounts into the process. By 1912, x-ray apparatus working up to 200 Kv was in use and the development was directed to the use of more penetrating rays. World War I stimulated to a great extent the use of radiation in medical and industrial fields. Increase of x-ray photography and radiotherapy became more rapid and disasters were added to by the industrial use of radium and mesothorium in luminous dial painting. In the latter case, the damage was caused by inhalation or ingestation of radioactive materials which gave rise to beta ray skin burn, bone sarcoma and deleterious blood changes, in addition to those produced by the external gamma irradiation. In the United States, radium luminisers in World War I inhaled and ingested the substances, partly through their habit of pointing the brushes with their lips and partly from the steady absorption of radioactive dust over a considerable period of time. This lack of health precautions produced some of the earliest cases of radiation injury by internal exposure.

According to Martland and others (1929), some 20 fatal cases occurred among those employed in the luminous painting industry between 1918 and 1930, and cases associated with this period in which radium poisoning was a contributory cause of death are still occasionally reported. Many of these early luminisers suffered from aplastic anemia or osteogenic sarcomas of the jaw. It was fortunate that few cases were reported in other countries because of limited production of radium and different habits of painting.

In some industrialized countries the use of x-ray for radiography and fluoroscopy during and immediately after the War was responsible for a number of x-ray burns or injuries, and the increase of the medical use of radiation spread over many fields of medicine such as surgery, orthopedics, tuberculosis diagnosing, as well as the field of radiology. It is, however, mentioned by March in 1944 that even as recently as in the period 1929 to 1943, approximately 5% of the 173 deaths of medical radiologists recorded in the obituary notices of the American Medical Association were due to leukemia, whereas this disease occurs in less than 0.5% of the deaths of some 50,000 nonradiological physicians in the same period.

Advent of Effort on Radiation Protection

Under the circumstances, it is natural that a few pioneers were attracted to the effort of hazard prevention, while social concern with the problem was negligible during the first quarter of the century.

Though some sporadic efforts to establish protective measures against the hazard were made in the early days of the century, a notable one was that of a recommendation made by Prof. Sidney Russ to the British Roentgen Society in 1915. However, because of the War, no definite instruction was made for civilian x-ray protection, though some efforts were promulgated for the safety of military personnel.

In July, 1921, the British X-ray and Radium Protection Committee was formed and its first recommendation was issued, followed by seven revisions until 1948. These recommendations set up adequate radiation protection measures and achieved some inspection and survey systems. In 1922, shortly after the recommendation was issued, the American Roentgen Ray Society was founded to formulate its own protection standards. In France the Commission du Radium was formed. Other countries, such as Sweden, became active in preventive measures too.

Consequently, the First International Congress of Radiology was held in London in 1925 and discussed, for the first time internationally, standards for protection against radiation hazards. This international affair opened the way for cooperation between nations and attached social importance to the problem.

In 1928, at the Second International Congress held in Stockholm, a series of recommendations were agreed upon and the International Committee on Radiological Protection was formed. At that time, the unit was designated and the result was the definition of the unit of x-ray dosage, "roentgen" (r).

In 1931, the Health Organization of the League of Nations (at present reorganized as World Health Organization) issued a number of protection recommendations, and in 1934 at Zurich the International Committee on X-ray and Radium Protection recommended a tolerance dose for x-ray and gamma radiation of 1 r per week or 0.2 r per day, which had already been adopted by United States Advisory Committee set up in 1929. However, since some confusion existed in the significance of "roetgen," the United States Committee revised the tolerance dose downwards to 0.1 r per day measured *in free air*

for whole body. This value was retained until 1949 and adopted as the standard for the Manhattan Project in 1942.

At the Fifth International Congress in 1937, the recommendation was enlarged and in 1941 the United States Advisory Committee on X-ray and Radium Protection fixed another basic figure of 0.1 microgram of Ra. as the maximum permissible body burden for the element, from the experiences and elaborate investigations on luministers' misfortunes. The value was adopted as a basic standard for the protection of workers in the Manhattan Project against the internal hazard associated with it, and subsequently transferred to the international recommendation in 1950.

From a historical viewpoint, the establishment of the International Congress of Radiology in 1925 was most important as a social movement for the radiation protection and the activity of the Committee formed should be admired.

Two basic figures, 0.1 r per day as the maximum permissible dose for external hazard by x-ray or gamma ray, and 0.1 microgram of radium as the maximum permissible body burden for internal hazard, were significant and conclusive results for the protection problem at the time just before the new era was going to start in 1942.

Generation of New Energy and New Hazards

Since the discovery of nuclear fission of uranium by Meitner in 1939, much scientific attention was attracted to the phenomenon and its principle. Many Nobel Prize winners as well as other competent scientists consequently met in the field in order to investigate the mysterious energy concentrated in the nucleus and study how to release the power concealed in it. Unfortunately, at this dawn of a new era, the world was fighting World War II, and the release and utilization of the power was unhappily directed to the destruction of human lives.

In the middle of 1942 a giant project was established in the United States. The Manhattan Project was a unique and epoch-making organization of great scientists and of huge industrial capacity for the purpose of releasing and manipulating atomic energy.

A group of physicists called a Health Physics Group was formed in the Project, whose role was to measure the quality and quantity of radiation released and used in magnitudes thousands upon thousands of times greater than ever before, to estimate the hazard and to protect the workers from the hazards. Intensive programs of research on the biological effects of radiation were carried out in parallel with the persistent efforts to control radiation hazards.

Basic figures of 0.1 r per day and 0.1 microgram of Ra in the body were taken as tolerance levels for humans, and every effort was concentrated to get adequate measures to establish human exposure within the figures. For the purpose, various efforts were made for instrument development, assay of body content by urinalysis, shielding studies, design of remote control equipment, perfection of methods for determining radioactivity in air and water as well as for biological effects of external radiations, toxicity of uranium and other materials used for the nuclear energy industry and internal effects of inhaled and ingested radioactive elements and so forth, with changing emphasis to meet the demands of the widening fields of activity in the Project. Many competent physicists, biologists and other experts made excellent organizations to deal with the problem. It is far more important to emphasize that in the very development of the problem, physics, chemistry, industrial hygiene and biological fields began to be amalgamated into a huge new scientific field called radiological health science, including radiation biology, health physics and many other associated fields with health protection against radiation hazards.

In 1943 (actually December of 1942) the first controlled nuclear chain reaction was established in Chicago by Dr. Fermi and his associates, and the first huge nuclear energy released from the atom surprised the world and opened a new era in 1945.

It was, however, already well recognized that the utilization of the enormous energy in peace time would prevail fairly rapidly and the effort of health protection against the hazard had to be continued and even doubled in the future. Several well organized groups of experts, therefore, continued and intensified their activities in the field in the United States' Atomic Energy Project and a great amount of money was allocated for the purpose. To understand their development and activities one may read a report book published by the U. S. Atomic Energy Commission in 1950, entitled *Control of Radiation Hazards in the Atomic Energy Program.* In 1946, according to the prediction and numerous experiences in the Project, the United States Advisory Committee on X-ray and Radium Protection was reorganized and enlarged to become the National Committee on Radiation Protection (N.C.R.P.), and began to gather data for the reconsideration of tolerance standards for radiation protection. In 1948, the Committee made a number of new decisions on radiation dosage from external sources.

In the United Kingdom, the Medical Research Council had become very active in similar ways

and set up its Tolerance Doses Panel, which reconsidered some problems.

In 1949, a joint conference of the United States, the United Kingdom and Canada was held at Chalk River in association with atomic energy operations which included operations of reactors and rapid increase in production and uses of radioisotopes. At the Conference, agreement was reached on the recommended new maximum permissible dose for external radiation, maximum permissible body burden and concentrations in air and water for a large number of radioelements, as well as some relative biological effectiveness for various radiations. These efforts brought about a fruitful result in the international scale in the following year.

Recent Development of the Problem in the World Scale

The Sixth International Congress of Radiology met in London in 1950 and adopted the Chalk River Recommendation as the basic standard for radiation protection with substantial agreement of the world's major countries in the field, with few exceptions. However, the Congress insisted on delegating the right to establish legal implementation of statutory procedures for the tolerance levels to more appropriate national protection committees suitable to the demands of their respective countries. The Congress found that the rapid increase of possible hazards in number and scope in the field of atomic energy utilization forced the establishment of more extensive efforts for the development of adequate radiation protection. Accordingly they divided the Protection Committee into six subcommittees, such as that of permissible dose for external radiation, for internal radiation, of protection against x-ray, gamma rays, beta rays, neutrons, protons and other heavy particles, of disposal of radioactive wastes, in order to intensify their efforts.

After collecting and discussing data, they reached the new recommendation in the Seventh International Congress held in Copenhagen in 1953, and published it in 1955. This recommendation made no change in the basic figures of the permissible levels of x-rays and gamma rays for whole body irradiation (0.3 r per week), but put a detailed consideration on the value for partial body irradiation, especially for so-called critical organs, such as blood-forming organs, gonads, eyes and skin. It also adopted a new unit of absorbed radiation dose, the "Rad."

The recommendation also included extensive descriptions of measures for radiation protection against x-rays and gamma rays of 5 Kev up to 2 Mev and some considerations for x-rays over 3 Mev and other heavy particles, and included for the first time really comprehensive data for the necessary shielding of x-rays.

By the time of this recommendation, the use of nuclear energy and radiations generated from the atom increased exponentially in both medicine and industry, and artificially produced radioisotopes became freely and cheaply available. In United States nearly 50,000 shipments were sent from the Oak Ridge National Laboratory to hospitals, universities, research laboratories and factories, and about 6% of them were for export to 50 other countries. In the United Kingdom, nearly 60,000 radioisotopes packages were produced and dispatched, and a third of them were exported.

Accordingly, the United States enlarged and intensified their National Committee on Radiation Protection and issued many far-reaching recommendations relating to the problem in the form of Handbooks of the National Bureau of Standards, which were widely dispersed all over the country and deemed a Biblical text for the experts. They have also been distributed among many experts in various countries as the most definitive references for protection measures.

In March, 1955, the Prime Minister of the United Kingdom requested the Medical Research Council to appoint an independent committee to discuss the problem of hazards prevention against nuclear radiation, including the genetic aspects. The Council accordingly appointed a committee, under the chairmanship of Sir Harold Himsworth, and presented the report to the Parliament in 1956. This report covered wide areas of assessment of the hazards of exposure to radiation for individuals as well as for whole populations, and was delivered to the world.

Meanwhile, the International Labor Organization had been interested for some years in the preparation of a Model Code of Safety Regulations for Industrial Establishments, and since the use of radiation in the industrial field was rapidly increasing, a chapter was dictated concerning protective measures against dangerous radiations. This was prepared by a committee of experts who met in Geneva in 1949 and discussed the risks involved and the precautions necessary for the industrial use of ionizing radiations. The model code was published in 1949, but since then there have been tremendous advances in the field of nuclear energy utilization, and the use of radioisotopes has greatly increased, so that the section in the code for radiation protection has become considerably out of date. The I.L.O. is, however, making remarkable efforts to catch up to current progress in the field and maintains continuous interest in the problem. The report submitted from the I.L.O. to the International Conference on the Peaceful Use of Atomic

Energy held in Geneva was titled, *The Protection of Workers against Ionizing Radiations* and covered subjects relating to the problems of industrial use of radiations and the protection of workers against them.

On the other hand, the World Health Organization was concerned with the problem historically. Particular interest of the W.H.O. in the problem was, however, laid in the broad aspects of public health relating to the use and release of nuclear energy. Such problems as radioactive waste disposal, environmental contamination, somatic effects of low-level, long-term irradiation on humans, as well as genetic effects of radiation on human species are of vital concern to them. They also show interest in problems of training of public health personnel and of dissemination of pertinent public health information in the field of radiological health. W.H.O. also recently submitted a report to the Geneva Conference and its sponsoring I.C.R.P.

Some other national and international conferences on radiation hazards were held during the time between 1946 and 1955, and numerous experts gathered together to discuss the problem and to exchange their knowledge and views. The United States' National Academy of Science set up some committees for the problem and published the reports on biological and pathological effects of radiation in 1956, summarizing scientific knowledge of the field up to that date.

In August of 1955, the International Conference on the Peaceful Use of Atomic Energy was held in Geneva, Switzerland, and created worldwide interest in many aspects of this subject. It was attended by representatives of 73 countries and a large volume of data was submitted to the Conference, including many which are concerned with the problems of radiation hazards prevention, biological effects of radiation and legal aspects of hazards control.

The Conference was a remarkable step in a new period in the atomic age, and an epochmaking advent of the utilization of atomic energy was made by it on the international scale, particularly characterized by peaceful use of atomic energy and really international cooperation for it.

Brief Review of Radiation Protection in Japan

The first introduction of x-ray to the medical field in Japan was during the beginning of the Taisho Period just before the outbreak of World War I and was probably done by military medical officers for the investigation of military surgery. It is difficult to find out when the use of x-ray started in Japan, though I assume that some x-ray apparatus must have been working in some physics laboratories at an early time.

According to increasing interest and rapid prevalence of the x-ray in the medical field, the Japan Roentgen Society was formed in 1924, but no special concern was raised for hazard prevention at the time. It is also said that the first use of radium in the medical field in Japan was made by Dr. Dohi, a famous dermatologist, at the beginning of Taisho Period. In 1927, the Electrics Research Laboratory of the government tried to make a standard measurement of x-ray for the first time, but failed. The year 1934, when the issue of tolerance dose of 1 r per week was proposed in the International Committee in Zurich for the first time, was a very important year in the history of radiation protection of Japan. In this year a request came from International Organization in Geneva to the Japan Roentgen Society, asking what kind of measures were being taken for protection against radiation hazards. At that time the Japan Radiology Congress was formed, and these two organizations required the government to take some legal control measures for the protection from hazards, so that the government appointed a committee to investigate the problem. Many leading radiologists, such as Dr. Nakaizumi and Dr. Higuchi, and some physicists were included in the committee. The activity was continued and the recommendation was issued in 1936. The government took the recommendation and the Ministry of Internal Affairs issued in 1937 a regulation in which they stipulated standard protection measures for x-ray apparatus and standard shielding thickness of the wall of room or installation, according to the law called medical installation law. They stipulated the necessity of measuring the x-ray dose in an installation, but no particular tolerance level was formulated at the time. Accordingly, the Electrics Research Laboratory began to make a standard measurement of x-ray and checking of x-ray dosemeters in 1937 through the efforts of Mr. Mochida, a physicist. These activities stimulated those who were engaged at the time in radiology or physics using x-ray and radioactivity to recognize the need for precaution against hazards.

Unfortunately, however, public concern with the problem was so scarce at that time, that many injuries were occurring and there were many victims.

In 1941, stimulated by the International Congress of Radiology, the Japan Radiology Congress established the Committee for Radiological Protection and discussed protecting measures for x-ray and radium users. Some reports were accumulated and problems were investigated, since x-ray apparatus was used all over the country for the periodic physical examination against

tuberculosis and therapeutically for many other cases. The Committee continued activities during World War II.

However, the historical blasts that occurred over Hiroshima and Nagasaki changed the outlook on the problem quite drastically. At first, the Japanese people could not understand what had happened. Then came the hysterical social concern over it. Fear, disquiet, despair and anger mushroomed like the bomb. A survey team was formed immediately and did the best they could under the circumstances. After the surrender, the Atomic Bomb Casualty Committee (A.B.C.C.) was organized under the sponsorship of the U. S. Atomic Energy Commission and with the close cooperation of the Japanese Government. Numerous American and Japanese scientists as well as medical doctors were engaged in investigations and surveys relating to injuries caused by atomic bombs and radiation. A great many reports were already published in English as well as in Japanese and circulated among experts in the world. What is most important about the reports is that these are the only data existing in the world at present relating to mass casualties in the human race from strong radiation created by nuclear fission.

For scientists or those having scientific minds, the experience is important because it permits recognition of real effects of radiation on living things on the earth and understanding of significant problems associated with the development of the new age into which the human being has been forced to enter.

For common Japanese people, however, the catastrophe caused strong fears of the Atomic Age, and social and religious appeals to ban the use of the deleterious powers in industries and other social developments broke out with hysterical journalistic propagation. Of course, this could be sympathized with and justified to a certain extent, but, in my opinion, it was unfortunate for my country that even some leading scientists made the statement that the investigation of atomic energy utilization should be depressed for several years, while atomic nuclear science could be studied. They couldn't understand that the utilization of atomic powers is not the problem of physics or the military force, but that of industry, economy and social development of our country.

However, in spite of unbalanced fears and misinformation, a quiet revolution of the new age was going on at the bottom of the society. The first import of radioisotopes came from United States in 1950. A committee was formed in the Science and Technology Administrative Committee (S.T.A.C.) of the Prime Minister's Office to distribute the isotopes to research laboratories and hospitals. In 1951 the Japan Radioisotope Association was established for dealing with the matter, and the import and use of isotopes in many fields increased really exponentially until 1957. In 1952, for example, there were only 200 Curies of Co 60 in Japan, but we had 28,000 Curies of it in 1957. Similar tendencies can be cited for other isotopes.

On the other hand, according to the restoration of production of x-ray machines, the number of machines increased rapidly and continuously. Some big companies manufacturing the machines began to make x-ray apparatus in mass-production pattern and recently have produced even the Betatron generating photon energy of more than 25 Mev. The membership of the Radioisotope Association as well as of the Radiology Congress increased steadily, and the former exceeded more than 1,000 in 1955.

Under this situation, the number of injuries caused by hazardous radiations would have probably been increasing steadily, too. But, unfortunately there were no reliable statistics of the damages, and the anxiety of experts was accordingly neglected. There were more clamors and hysteric shoutings about the hazard of nuclear detonations among the public, being led by journalistic propagation and social sentimentalism. As far as the Ministry of Labor where I was working was concerned, we only had a statistic showing the numbers of victims compensated as radiation injuries caused in professional working places by the Workman's Compensation Law, which counted 108 cases between 1950 to 1954. But, according to a small survey conducted by the expert's group in 1953, 20% of 224 x-ray technicians, medical doctors and other workers examined showed abnormal blood cell counting and other suspicious symptoms of radiation injury. In the same time, we estimated there were about 20,000 workers including medical doctors, x-ray technicians, nurses, industrial workers, who would be exposed to ionizing radiations often in their professions.

Recognizing the seriousness of the problem, the Committee of Radiological Protection in the Japan Radiology Congress discussed measures to prevent the damage and made an effort to appeal to the government to take action to solve the problem. I have attended meetings many times in which we discussed two main problems; one, the protecting measures against x-ray, particularly in the medical field; and the other, the safe handling of radioactive isotopes. This was represented by many experts and various technical officials concerned.

In 1953, S.T.A.C. established a subcommittee which was organized to discuss the problem of legal control of protective measures against

hazards of radioisotopes. Many experts in the field and some ministries concerned were represented, and I attended as a technical representative of the Ministry of Labor many times. Through numerous discussions and exchanging of opinions, the subcommittee issued a recommendation on the radiation protection necessary for safe handling of radioisotopes in 1954.

The Ministry of Health also planned to revise the regulation previously mentioned, which was already accused by experts of being out of date. Through cooperation with the Committee of Radiation Protection, the Ministry revised the regulation recently to bring the style and content up to date.

The Ministry of Labor was also considering the revision of the regulation for the protection of workers according to the Labor Standards Law to meet the demand of the new era.

Paralleling these administrative reactions, one more important administrative procedure was going on in a fairly different, but associated field. This was the activity of the National Standard Division of the Ministry of International Trade and Industries. They made efforts to standardize radiation measuring instruments, protective equipment, measuring methods and the unit of radiation used, for the purpose of radiation protection as a whole. I had also participated in some of these activities and firmly recognized that this unsensational, painstaking work was quite important and essential.

In 1953, a sorrowful accident occurred in the Pacific Ocean, the second disastrous case for the Japanese from the atomic bomb. Twenty-three crew members of the Fifth Fukuryu-maru, a small fishing boat, were attacked by deadly radioactive debris of the thermonuclear bomb test operated in Bikini Atoll in the Pacific. The case was quite stimulating and sensational for the public, and hysterical reaction prevailed all over the country with intensive journalistic propaganda and excited political issues. It is, moreover, unfortunate that one crew member died of a liver disorder subsequently developed from the injury. At the same time, serious economic disturbance was caused in our fishing industry by the accident. This brought more confusion. People on the street were informed that Strontium 90 in the fish is dangerous, while they were quite unaware how the radiation used in medicine and industry will cause the damage similar to it. Extreme fear was expressed of isotopes, but not of x-rays. Many political leaders seemed to be persuaded that the atomic bomb is the only source of environmental radioactive contamination. It seems to me unfortunate many social leaders in our country became more suspicious of the values of utilizing of atomic energy in our social developments because of this accident.

However, with foresight and firm belief, the subcommittee in S.T.A.C. intensified their activity and the opinion was expressed that we should have a consolidated legal control and administration for preventing accidents and injuries which may be caused by the utilization of atomic energy that will certainly come.

Unfortunately, at the time just before my departure from Japan to the United States to study radiation protection in summer of 1955, there was no leading responsible person who could declare when there would be an atomic reactor in Japan and what kind of project we would have for the utilization of atomic energy.

Of course, the atomic bomb casualty was disastrous and the fishermen's case was a misfortune too, but it is, in my opinion, far more regrettable and unfortunate for my country that we delayed the start of the real atomic age in Japan for 10 years, because of unreasonable, hysteric fear and unbalanced, insufficient information as well as misevaluations and misled considerations for the utilization of atomic energy, though our nation was the one which received the baptism of the mysterious power for the first time in the history of the world.

A drastic change, however, has occurred in the situation during my stay in the United States. It is quite natural that we should enter a real atomic age for our society as soon as possible; otherwise we will be miserably left behind in this developing, modernizing world. We must break out of industrial and political circles, since the problem is not one of scholastic interest in its nature, but of social and industrial development. Consequently, we have now inevitably entered the new age in a real sense. The Geneva Conference held in 1955 was a critical point for the movement. At the end of 1955, three laws for atomic energy utilization were approved in the Diet, and at the beginning of 1956 the Japan Atomic Energy Commission was established. The Japan Atomic Energy Institute was also formed and began to build the first reactor at the site, 100 miles from Tokyo. It was on the ship nearing Japan that I heard the news that the first reactor of Japan had just reached a critical stage. The new fire was at last lit in 1957, 12 years after the first glittering of the fire had sparked on the land.

If someone wants to know the details of what happened in Japan after 1955 in relation to atomic energy utilization, I recommend the report recently compiled by the Japan Atomic Energy Commission, *Genshiryoky Hakusho — Official Paper of Atomic Energy Project in Japan*, in which one may learn how Japan entered the new age and what she is doing now.

The Climate of Stress

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Some psychologic aspects of science, values, ethics and religion related to health.

Stress is perhaps a poor word to describe the subject of this paper. To most people stress connotes strain; but stress is a necessity in our modern life. Each individual can tolerate a specific level of stress. If we achieve this level exactly, we live dynamic, purposeful, useful, happy lives. If we exceed this level, we have difficulties.

It is unnecessary to prove that some stress and struggle is a blessing to be sought, rather than an evil to be avoided. They are as much a part of life as breath. Even that may involve a struggle, as polio victims know.

However, many feel that stress is a factor, difficult to evaluate, in the increasing incidence of hypertensive and coronary disease, mental health problems and possibly malignancy. It is popularly believed that, as far as the incidence of coronary artery disease is concerned, physicians, lawyers and industrial executives lead the pack. I doubt whether this is a valid statistical analysis of the situation and believe that no occupational group is immune, either from stress or its effects.

It is a subject being investigated from many aspects and among all types of populations, human and animal. After a 40-year study of birds and mammals that died in the Philadelphia Zoo, two scientists have reported they found a high incidence of arteriosclerosis, or narrowing of the blood vessels, and they attributed it not so much to aging or diet as they did to "social pressure" resulting from an increased animal population in the zoo.

Our age of urbanization and crowding does cause health problems, especially in connection with mental or emotional adjustment in our complex society.

This has been called the "age of stress and anxiety." There is a question, however, of whether we are dealing with a greater problem of anxiety because of the stresses and strains of present-day life, or whether there has been an increased recognition of this form of reaction. No doubt anxiety has been a part of human experience since the beginning of man. On the other hand, our culture has become more complicated. Man never before has found it necessary to face the doubts, fears, tensions, taxes, hydrogen bombs and psychological hazards that he meets today. Periods of anxiety are certainly the experience of every normal individual who lives in any large civilized community, especially if he must drive an automobile to and from work. Man has created many sources of anxiety through his own inventive genius. Two examples may be called Motorosis and Smogophobia. The multiplicity of health fund campaigns also may be partially responsible for hypochondriasis and increased anxiety over health among our well informed public.

I would like to consider some cultural problems in the climate of our daily lives that contribute to stress and are related to health. But first, what is ealth? I am sure you will all agree that health does not consist only of being free from mental or organic disease. I would suggest that some of the conditions for health in any individual are:

A. Past History
   1. A wise "selection" of antecedents in preceding generations.
   2. A reasonably happy and emotionally secure childhood.

B. Present or adult history
   1. A satisfactory occupational situation.
   2. A satisfactory home situation.
   3. A sense of humor.
   4. Opportunity for self-expression in creative endeavor.
   5. Sufficient rest and noncompetitive but productive leisure, with ability to change pace.
   6. Physical, mental, cultural and educational fitness for occupation.
   7. A sense of humility toward one's ability, both in success and in failure.
   8. Adequate social mores or roots in the

community, and a willingness to bring benefits to the community without thought of material gain. This requires a charitable attitude and a high degree of emotional maturity.

9. Ability to adapt to age (more psychologic than physiologic).
10. A spiritual point of reference outside of secular or material existence, and sufficient faith to leave some things beyond mortal control to the "powers that be."

A Satisfactory Occupational Situation

A satisfactory occupational situation was mentioned as one condition of health. This brings us to a consideration of the present day climate of work and business. It has become almost axiomatic that there is very little about man's everyday occupation that reminds him of eternal salvation or true destiny.

However, American business is fairly well into a humanistic phase. We first learned how to produce with machines. Management men found that machines weren't enough for the foundations of a successful and lasting organization. They learned that good human relations are equally important. Most American management men today — responding either to their own enlightened impulses, to competition or to the public pressure — are conducting their businesses on a high plane of moral conduct as far as human relations are concerned. They are also beginning to try accurately to reflect through better communication this high plane of conduct for all the public to see. This is complicated by the fact that many people, including some segments of labor, cling to out of date impressions formed decades ago when human relations in business left much to be desired.

There still is a sizable group of persons who feel that when it comes to ethics, business and the professions fall far short. Others, including business educators, admit these deficiencies, but justify the results by comparing them to those achieved in socialistic and communistic countries.

There is quite a bit of talk today about what force, over and above ethics, religion can bring to bear to make businessmen and other leaders of our culture assume their moral duty. The answer would seem to be the wrath of God and the fear of hell, if it's orthodox religion that one has in mind. This is to be instilled by theologians "that speak to the leaders in their own idiom."

My guess is that if we made a survey of American doctors, lawyers, engineers and businessmen we would find that most of them are members of one or another of the numerous churches in our country. The fact that some have failed to develop ethical standards of conduct may indicate that they are able to serve God and Mammon at the same time. Or one might conclude that their religion is something they practice for an hour on the sabbath with no carry-over into their lives during the other six days of the week.

As I see it, the task of business and professional leaders today involves making moral decisions and accepting moral responsibility which affect the lives and health of many people besides themselves. No good doctor, lawyer, administrator or executive lacks this instinctive acceptance of responsibility — responsibility not only toward his own immediate profession, but also toward the community, the nation and even the world. He must test his own actions in the light of the broader public interest. He must realize that powerful forces result from the collective actions of men such as he, just as the collective actions of labor leaders, organized workers and farmers create other forces.

Some people become doctors, lawyers and administrators by chance. Most choose their work early for a career. Those who succeed seem to have certain motivations for their choice and certain personal traits that account for their success. The motivations consist in deriving a sense of well-being and security from knowing how to get things done that are worthwhile. There are highly intelligent and resourceful people, capable of formulating excellent plans, who have no idea how to interest or induce anyone else to carry out their ideas. Others, perhaps less well endowed, do so readily. Success in these interpersonal relationships depends upon emotional maturity, which is the *sine qua non* for successful relationships with others. Failure in this can bring unhappiness to the individual and all connected with him. He can give a lot of people ulcers. Collective failure among large numbers of our leaders may bring a demand for change in the social order. You can see the far reaching importance, therefore, of emotional maturity as a condition of ability and health.

It is necessary for the survival of any social order that its members submit to the rules that are essential to its particular mode of production and mode of life. In modern society, industry has been elevated to the position of one of the highest virtues and needs.

This brings us to a brief consideration of the working man today. Not long ago a prominent labor leader, speaking at an annual meeting of the American Industrial Hygiene Foundation, made the following statement: "We union people can tell you that man is a social being. He identifies himself with a group. He gives his loyalty to a group. His thinking and his acting

are colored by the group or groups to which he belongs. Any effort to isolate the individual man — or the individual worker — on a laboratory slide, where he can be pushed and poked to find out what makes him tick, is futile and destined to failure."

This attitude, though not general in American labor, raises a serious question as to whether the American workman can ever again be considered as an individual or must he always be considered "a head in a herd." In other words, is the individual worker "the vanishing American"? I for one believe that men by nature want to be free as individuals in determining their destinies, and when this natural drive is thwarted, either by management or labor, it causes frustration and may affect health and happiness.

It was Pope Leo XIII who in his *Rerum Novarum* said, "Labor needs capital; capital needs labor." It is a God-given right of men to join together for their mutual benefit and protection. This is in the American tradition of propensity for forming associations — mentioned by Alexis de Tocqueville in his book, *Democracy in America*, 1831. Pope Leo XIII, also emphasized that the worker must have nothing to do with men of evil principles.

There can be no question that labor unions are a necessary and important part of our business organization. They should occupy an even more important position in economic progress, which they could do if they were to devote their attention to increasing skill and productivity, to promoting good employer-employee relations, to developing human relations programs that would give greater satisfaction and dignity and mental health to each worker.

There are, however, forces acting against the idea of increased skill and productivity mentioned among both organized and unorganized workers. One of these is the present day attitude toward work.

Can we not say that man's lazy streak is the principle reason for his progress? Who wants to go back to crude tools and long working hours just because he likes work? This seems to contradict the theme that struggle is a blessing, but to my mind, it does not. After getting his oil furnace, with a thermostat, does the owner sit in his rocking chair the rest of his life? No, he does something else. Freed from shoveling coal, he may turn his basement into a workshop to invent another labor-saving tool, or make an excellent piece of furniture on a woodworking machine.

There was a time when, to all good craftsmen, artisans, artists or farmers, the creative pride of doing something well was the dessert of the feast; getting paid for it bought the bread. However, the master has been separated from his servant and the servant from his product of toil.

As we look around us, it is plain that in recent years a lot of people have lost interest in pride of accomplishment and have gone "nuts" on the contemptible cult of "security" guaranteed by government. The illusion of the age is that people can vote themselves rich.

Even when young people apply for their first job, they ask, "When will I begin to draw a pension? How many coffee breaks in a day? How many holidays? How long and frequent are the paid vacations? And if I work more than 40 hours, do I get time-and-a-half?" This attitude makes no contribution to the individual's mental health. Desire for security can become obsessional conduct in itself and can give the individual a neurosis.

We mentioned that an important condition for mental health is a sense of humility toward one's ability, both in success and in failure. The climate of stress today is due, at least in part, to our great pride in business and technologic accomplishment, and the desire to excel individually and collectively has been almost an obsession. The moon probe rocket (Pioneer) was described as a "shot in the arm for our pride and prestige."

What is the present day technologic climate we live in? We're living in a world that is so technologically precocious that it is hard for us to comprehend, but in many ways we are spiritually adolescent and unprepared for the fruits of our labors. You remember how upset we were, our consternation and shame, when the first Sputniks came. Our pride was hurt; it need not have been. All we needed to say was, "This is a magnificent achievement. We congratulate you. We too have been working in this field. We, as a God-fearing nation, have also been interested right now in the problem of people. In this connection, we'd like you to remember too that we don't have malaria or diphtheria (Russia still has diphtheria epidemics) any more in the United States."

We human beings can become very vain over what we call our own discoveries or inventions. It is recorded that, on greeting the great mathematician LaPlace after receiving from him a volume of his *Mecanique Celeste*, the Emperor Napoleon exclaimed, "I see, M. LaPlace, you have given us a theory of the universe, but have made no mention of its creator." "Sire," replied LaPlace, "I have no need of that hypothesis." Somewhat amused, the Emperor later told the incident to LaGrange, who remarked, "Ah! but it is a very useful hypothesis."[1]

I am sure humility would have been useful

to LaPlace, who, partly because of his extreme pride, made errors in his science, and later his system of mechanics was held in disfavor. A much more humble man, Buffon (1780), had a more accurate concept of the nebular hypothesis in the birth of the solar system.

For lack of humility and for pride of authorship we human beings are prone to discover something that is already in nature and call it our own invention. It frequently happens that, when man seeks to make a structure of his own, he can find that the most efficient utilization of his efforts is brought about when he copies some scheme of nature. I know of a scientist who had the occasion to make an arrangement which had to be folded so that it could enter through a small space and then spread itself out again. He had some difficulty in the matter. He finally said to his instrument-maker, "Let us find out how the Lord would do that, for a thing like that was done in a flower." And when they came to examine the flower, they found that it had the desired characteristics; and they ultimately made something which was not unlike a flower.

There is an old story about the hive cells of a bee. I forget the exact nature of the problem, but it concerns the question of the best angle of the hive cells in order to secure the largest amount of space in a cell for the maximum amount of honey and the minimum amount of wax. Well, the mathematicians worked out the value of this angle, and they found that it was almost exactly the same as the angle that the bees made. Then, a little later, somebody examined the calculations of the mathematicians, and found a slight error; when that error was corrected, it was the mathematicians who were wrong, and the bees who were right.[1]

In connection with this line of thought, I have sometimes wondered what would happen if one of us human beings should design a universe. Any theoretical physicist could design a universe.[1] If you allow him to make a few postulates, a few starting points, then the tracing of their consequences would evolve a little universe. I have in mind this picture — the picture of the atheist who is given his opportunity to decide upon his postulates and then goes ahead and makes a universe. I think it would probably be a much less perfect universe than ours. He may succeed in accounting for the kind of light emitted by the transformation of hydrogen atoms. He may succeed in accounting for gravitation between planets, and so on, but, 10 to one he will have forgotten to provide for a nice substance like chlorophyll which will convert the sun's rays into the form of energy necessary for the growth of plants. Ten to one he will have forgotten to provide for the existence of the photoelectric effect, so he will be blind. His consideration of chemical problems of the universe might take a hundred million years, and even after this time his scientists might find themselves without any convenient substance like mercury with which to do their experiments. He may find that he has failed to provide for such a convenient substance as wood, which is hard enough to build houses with and yet soft enough to drive nails into. And so the end of the story is the picture of the atheist who has designed his universe, and then, as a hell, he is made to live in it. Unfortunately, like many militant atheists, he will want others, including young uninitiated students, to keep him company.

There have been too many proud young fledgling pseudoscientists developed in our universities of late whose initial flirtation with atheism has been the pitting of their own knowledge against Biblical versions of creation, when there actually is no real conflict except in accidental details.[1] Suppose, for example, we take, as it stands, the simple statements of Genesis that "The earth was without form, and void; and darkness was upon the face of the deep"; and "God said, Let there be light: and there was light." Now, I suppose that the most dogmatic interpretation of this statement would be to the effect that nothing more was necessary than the mere command that light should be produced and light came forth. Yet, if this were all, how much less dignified a procedure would have been adopted than the one which represents the physicist's view of the matter. If the physicist would have attributed the universe to a deity, his mind would not have been content by the deity just turning on some switch which illuminated the heavens. He would see the process taking place in some such way as this: He would see the universe "without form and void," and he would see the deity setting out to bring order into it. He would see him formulating laws of nature by which the dead "ether" or space would have congregations of atoms and molecules, but these atoms and molecules would not be an end in themselves. He would see, provided for in their structure, a system of possible states, such that by passing from one to the other, light would be emitted.

The same general mechanism which provided for this would also operate in another way to provide for chemical affinity. He would see forces provided for between them so that by their gravitational attraction they could come together, as the atoms and molecules of the sun came together and generated the conditions necessary for the production of this light. He would see the statement, "And God said let

there be light, and there was light," magnified into a realization of tremendous power, beauty and significance. He would see the universe grow as the result of a great planning, a planning far more dignified than that involved in any mere conjuring trick. And yet, should the whole story have been written for the world, several thousand years ago, nobody would have understood what it was all about. Even today, some of its chapters would be comprehended with great difficulty. And yet, the whole story itself hangs together under the statement, "And God said let there be light, and there was light." All that would be questionable about that statement would be its incompleteness. As we increase our knowledge of the universe, the stature of its Creator will increase, not depreciate, and this increased knowledge should lead us further toward, not away from, acceptance of the concept of a supernatural being.[2]

We think of ourselves as three-dimensional beings traveling a perfectly definite path. But this picture is incomplete, for in the language of the theory of relativity (a mathematically convenient concept [$\sqrt{-1}$] not necessarily completely factual) we go along a geodesic in a four-dimensional, non-Euclidean continuum.[3] I mention this, since many of our frustrations and problems today arise out of the fact we fail to realize the limitations of our minds. Consider, for example, some scientific principles, such as electronic orbits. These are so fundamental as to be beyond the grasp of the human mind — there is no way to experience them. We can demonstrate them with things like balls or spheres, which take up a definite amount of room. An electron — well, it is meaningless to say, it's like discussing how much room fear or anxiety takes. In realizing our lack of perfection as human beings, we must not forget that the mind forms part of the universe about which it is thinking; and, this fact may limit considerably its power to embrace in its thought the content of that universe. In some respects, the mind in its relations with its surroundings is like a special type of machine trying to respond to machines of other types. Consider, for example, a radio set. It is sensitive to electrical influences, but there are many things to which it is not sensitive. It is not sensitive directly to sound to any appreciable extent, but only to sound which has been transformed into electrical vibrations in the form of radio waves. It is not sensitive to heat and cold within limits. There is nothing in its make-up to correspond to its being melancholy when Sibelius' "Swan of Tuonela" is played, or depressed by its surroundings. It can, as it were, "think" about one kind of thing, electrical influences. The human mind, however, does know about the radio set and can also comprehend grandness of the Grand Canyon which the Canyon itself does not know. My whole point here is that the *ultimate* realities of the universe are at present quite beyond the reach of science and may be — and probably are — far beyond the comprehension of the human mind. The artist understands what he painted, but we see only the specks of paint.[4]

A Spiritual Point of Reference

We mentioned religion briefly in discussing the social and moral climate of occupations or business. Some psychiatrists are of the opinion that orthodox religion prevents man from growing into psychologic maturity and that for this reason it has no regenerative power. Some of our celebrated present day "novelist" psychologists also subscribe to this point of view. I will discuss this point of view later.

A number of persons who are concerned about twentieth-century man's tension, confusion and loss of direction have suggested that what we need is simply to work out a new set of values. Others feel that there is nothing wrong with the values of the past — such as love, equality and human brotherhood — and that we need simply to bring these values back again. Both of these points miss the central problem, that many people have, to a great extent, lost the power to affirm and believe in any value. (The neutral mind or the neutral nation may have this same difficulty to assert itself in terms of moral values.) No matter how important the content of values may be, or how suitable this or that value may be on paper, what the individual needs is a prior capacity, the power to do the valuing and accept. The triumph of barbarism in such movements as Hitlerian fascism did not occur because people "forgot" the ethical traditions of our society as one might misplace a code.

The humanistic values of liberty and the greatest good for the greatest number, the Hebrew-Christian values of community and love for the stranger, were still in the textbooks in Germany and Russia, were still taught in Sunday School, and no archeological expedition was needed to unearth them. Many people, rather, have lost the inner capacity to affirm, to experience, and most important, to accept values and goals as real and powerful in themselves. This applies in business, and certainly applies in political treatment of minorities, regardless of race, religion or whether they live in Germany, Russia, Virginia or Arkansas.

In this emphasis on inner motives to accept ethical principles, the findings of modern psychotherapy and the ethical teachings of Christianity

have their greatest potentiality and parallel. For the essential point in Christian ethics was the shifting of emphasis from the external rules of the Ten Commandments to inward motives. "Out of the heart are the issues of life." The ethical issues of life are not simply "Thou shalt not steal," and "Thou shalt not kill," but rather are inward attitudes toward other persons — anger, resentment, exploitative "lust in the heart," "railings," "jealousies" and so on. This holistic characteristic of man, whose external actions are at one with his inner motives, is a fertile field for growth of conflict, causing emotional disturbances and poor health.

In any discussion of religion and personality integration the question is not whether religion itself makes for health or neurosis. What we need to know is what kind of religion and how it is used. Does it increase dependency and keep the individual immature, insecure or infantile? The questions germane to the assessment of the role of religion are: is a given individual's religion so patchwork in character that it serves to weaken his will, enables him to avoid moral and personal responsibility for his day-to-day actions in life, possess him with fear and insecurity, or does it serve him as a basis of meaning which affirms his dignity and worth, which gives him a basis for courageous acceptance of his limitations and normal anxiety and aid to develop his powers, his moral responsibility and his capacity to love his fellow men?

The atheist or agnostic might call this neurosis and a form of dependent behavior. The results are good and it must be, therefore, a beneficial type of neurosis. This was the type of neurosis that Sir Isaac Newton had in his "neurotic" preoccupation with the mechanics of the universe and his eventual thesis on universal gravitation, which is probably the greatest scientific product of any human mind in history.

There is the important conception of religion that binds us together in an economy of souls. Paul was describing such "binding" religion when he said, "Religion pure and undefiled is to visit the widows and the fatherless in their affliction and to keep oneself unspotted of the world." To do this meant, in the first place, that one must emerge from childish egocentricity and take an active, mature and sincere interest in the needs of others (We must grow up! Some never do.); and in the second place, that one must refuse to take the world's success-patterns and power-patterns as his own. Christ communicated such religion when He said, very simply, "Love one another."

Religion in this sense of binding together invites man to a mature relationship with life and therefore, in behalf of that relationship, to a mature development of his own potentialities. The religious life, in this sense, is the one in which there is a constant effort to link oneself, in joy and contribution, to all the life-giving movements of one's world. The spiritual point of reference, in short, brings about a maturity in life — a maturity committed to the search for wholeness of being.

Remember we mentioned how important emotional maturity was in connection with leadership. Today, therefore, in spite of what some popular business psychologists may say, religion and psychological science may properly join hands. When it is mature, religion aims at man's maturing. In like manner, psychological science, as it matures, aims at man's maturing. The same can be applied to biological and physical science.

A Charitable Attitude

I am not a psychiatrist and most of my observations on mental health problems have been in the field of occupational medicine. In questioning employees, I frequently find a strong sense of guilt, owing to antagonism toward one or the other parent. This may have been spawned in marital difficulties of the parents. We also find guilt owing to suppressed anger and resentment toward brothers and sisters who, early in life, may have frustrated or intervened in the child's happy relationship with its mother or father. I see more and more older male and female employees showing evidence of guilt over financial or other responsibility toward an aged parent. Speaking of aged parents, here again we are presented with a cultural problem caused by medicine's rapid strides in keeping people alive to older ages. This has created a seeming paradox: the greater the progress at one end of the life spectrum, the more pressing the problem at the other end.

In 1900 there were three million Americans over the age of 65, or 4% of the population. Today oldsters are crowding the 15 million mark, representing about 9% of the total. By 1975, statisticians expect 25 million over-65's, roughly 13% of the population.

Early Labrador Indians left old people to freeze in the snow. Among Gran Chaco Indians in former times a son discharged his filial duty to aged parents by leading them into the forest, dispatching them with a few blows. The ancient Greeks and Romans paid lip-service to their elders, but revered youth. A popular Roman adage was, "Old age itself is a disease." Our Christian culture today demands individual and personal responsibility for our aged parents and close relatives. Many, however, would relegate this responsibility to the state.

I have seen adults who have compensated for suppressed resentment over this responsibility for years. In fact, their compensation may have been in the form of excellence in cultural and educational pursuits and human relations. Sooner or later this compensatory mechanism seems to break down. The sense of guilt then rises to a higher subconscious level and manifests itself in tensions, anxiety, depression or fatigue.

This brings up the question, are all feelings of guilt undesirable? This is important because there is frequently a failure to distinguish between guilt and feelings of guilt.

The psychiatrist is concerned only with feelings of guilt which may arise from either conscious or unconscious sources or feelings of guilt which are delusional and distorted and not based on objective reality. The guilt feelings which are dealt with in psychopathology may not be experienced by the individual as guilt at all, but may manifest themselves as a feeling of insecurity or, as I have indicated, in overt anxiety. The depressed person accuses himself of all sorts of sins which he has not committed, but for which he feels a tremendous amount of guilt. A great gulf, therefore, exists between a sense of guilt arising from actual deeds and one based on unconscious conflicts.

For a healthy personality it would seem desirable to eliminate guilt feeling entirely. But guilt feeling can never be wiped away entirely, nor would it be desirable to do so. There is a normal element of it that is compatible with, even necessary for, personality health.

A normal guilt feeling is actually a positive, constructive emotion. It is a perception of the difference between what a thing is and what it ought to be. Everyone experiences a guilt feeling an infinite number of times a day. When one passes a cripple begging on the street or a drunken man in the gutter, when by neglect or conscious deed one does harm to another person, when one is aware of persecution or war going on even in another country — in short, the individual experiences guilt feeling whenever he has a feeling of "ought," a sense of the discrepancy between what he is and what he ought to be, or what he does and what he ought to do, or what the situation is and what it ought to be. (This is a frequent problem among alcoholics who try to escape imperfection through the use of alcohol.) In the example of the beggar, the guilt feeling does not depend on whether one gives him money; it may be sociologically better not to give; but the feeling of guilt inheres in the realization that here is a situation — a human being degraded into begging — which is far from any ideal of human living.

Poets and philosophers and theologians have wrestled through the ages with the problem of explaining this curious feeling in the depths of man's being. Some have concluded that its source lies in the gap between perfection and man's imperfect state; man wants to paint a perfect picture or write a perfect poem, for example, but because he is fated to an existence in the human realm where everything is imperfect, he always falls short of his goal. Other thinkers, particularly the poets, have said that this feeling has its source in the conflict between the animal and spiritual natures of man. Greek Platonic thought makes it the conflict between body and mind.

In dealing with anxiety based on guilt, we come closest to the concept of the "Whole Man," i.e., the consideration of man as: (1) one psychic whole, (2) one single complete structure, (3) one social entity, and (4) one transcendent whole, that is to say, a human being who by nature "goes toward the good," or toward God.[5]

We have come to look upon the human being organically as a mechanism of great precision. There is a more delicate precision, however, in the relationship between the spiritual faculties and the organic mechanism. This relationship produces the whole being or the holistic man.

This means that man is both of the earth and of the spirit, to use popular but inaccurate terms. It means that if man tries to live only in earthy, organic, natural terms, like the animals, he becomes neurotic; and if he tries to escape entirely into the spiritual world and deny that he has a body, he also becomes neurotic. This situation is what people in past ages had in mind when they spoke of man's being "caught between two worlds." It is in reality not a matter of two worlds, but of two aspects of the same world. Man is not a horizontal creature entirely, nor entirely a vertical creature; he lives both horizontally and vertically. And the intersecting of these two planes is what causes the basic tension in man. No wonder his life cannot be a simple unity![6]

Out of this ultimate tension comes man's religion. At the point of intersection between the vertical and horizontal arises man's sense of the absolute moral commands. At this point man also gets his conception of perfection.

The contradiction in man, thus, is one proof of the presence of God in human nature. The Christian way of expressing this is in terms of man's sonship to God.

So guilt feeling, far from being something morbid for which we are to be ashamed, is actually a proof of our great possibilities and destiny. Man should rejoice in it; for it means that a "spark disturbs our clod." More highly developed personalities feel this sense of guilt

more keenly than the average, and utilize it beneficially in their further development.[6]

My point is this: any system of therapy of proposals for improving the mental health of our people which leaves out the aspect of natural guilt and religious tension are incomplete. I for one believe that the healthy individual must have a creative adjustment to God, and that a sound religion is indispensable to a mature personality and to health.

Psychosomatic Manifestations of Stress

Now, how can these things I mentioned affect the organic health of any individual? You are all familiar, I am sure, with the concept that anxiety and emotional conflict often are resolved by somatic expression. In these cases the skin, the heart and the gastrointestinal system act as seismographs of emotional earthquakes in the usually smooth pattern of relationship between the psyche and the soma. This is especially true with regard to symptoms and findings related to the gastrointestinal system. They are not particular to any occupational group, and are found as frequently in nonexecutives as executives. Fear, frustration or conflict at a spiritual, occupational, social or domestic level are the common stresses in these cases. Two or more employees, working under the same supervisor, may have the same psychosomatic complaints, and these frequently resolve to a peptic ulcer.

Many cases of hypertension we see have a pattern of ambivalent feelings toward associates. These individuals may display a high degree of outward calm and equanimity, but may burn with a good deal of repression of emotion. There is no intention here to attribute the cause of hypertension to strictly psychodynamic reactions. It is apparent in these cases that there is a tendency for a higher than normal level of blood pressure to reflect ambivalent feelings periodically at even higher levels in systolic and diastolic blood pressure. This does not mean that patience is unhealthy and not a virtue. It does mean that patience must be based on a true sense of charity to be healthful.

Summary

In summary, we have seen how stress is, and always has been, a normal part of human existence. Without some stress we would not be vital and dynamic in our daily lives. In a sense, it is the wear and tear of living.

We have postulated that because of certain cultural problems today, emotional stress may be on the increase. We have considered some of the psychological aspects of our cultural climate as they relate to science, values, ethics and religion. The possible connections of these psychologic entities to emotional or mental health and to stress have been discussed. It has been pointed out how some emotional problems can later become health problems.

We can expect technicological advances to go on, making mechanical horsepower and brain power cheaper than the humblest brawn. Thus, more and more men will be freed of certain distasteful and obnoxious labor and will have more time and money for leisure. Will this leisure be productive of a fuller, happier life with more positive health? That is our modern challenge. If we can guide men in the intelligent use of their abilities, resources (spiritual and otherwise), stamina and interests in life, we can help them lead satisfying and happy existences. We can do much in this field if we insist on moral responsibility for actions of all our leaders, be they teachers, doctors, lawyers, businessmen or politicians. We can do much by reviving the popularity of what the Greeks called *dialectos* (meaning discussion, argument, debate, conversation, discourse or just plain talk). We can increase individual communications among all creeds, and among all social and industrial segments of society. In this connection, 85% to 95% of people with emotional difficulties, and those subject to the stresses of our culture, do not need a psychologist or a psychiatrist. They can ventilate and find a solution to their problems frequently by talking to family, friends, relatives or a priest or minister. Anyone who can solve his emotional conflict through these sources, has no business in the office of a psychologist or a psychiatrist.

A British philosopher, 400 years ago, said this all so simply, in one sentence. "If every man would mend a man, then would all the world be mended." I think that all of us can do this. This is our opportunity in a torn, confused and ravaged world.[7] If we fail, we will find ourselves part of a civilization unprepared for the economic riches, technical advances and leisure it fought so hard to obtain.

References

1. W. F. G. Swann, *The Architecture of the Universe* (New York: MacMillan Company, 1934).

2. Right Rev. Msgr. Ulrich A. Hauber, *Science and Atheism* (Paulist Press, 1945) and *Creation and Evolution* (Paulist Press, 1947).

3. A. Kopff, *The Mathematical Theory of Relativity* (New York: E. P. Dutton and Company, 1921).

4. Sir James Jeans, *The Universe Around Us* (Cambridge University Press, 1953).

5. Editorial: *The Linacre Quarterly*, 20:97, November, 1953.

6. R. Corvini, unpublished material, Some Comments and Reactions to Wayne Broehl, "Do Business and Religion Mix?" *Harvard Business Review*, March and April, 1958. John R. Cavanagh, "What is Your Psychiatric I.Q.?" *The Bulletin*, Georgetown Univ. Medical Center, May, 1955.

7. H. H. Rusk, "Stress in the World: The Individual and the Doctor," *Medical Annals of the District of Columbia*, XXVII (May, 1958).

At the International Congresses on Occupational Health one familiar figure may be seen literally darting from meeting to meeting, and function to function. "Agile" is the word for his body. "Alert," "eager," "avid" are words for his mind. His garb is extraordinary for Western countries but customary for his own. It is not only his attire that commands attention. He would attract attention in any attire. In the English language the strongest words are likely to begin with "v" — thus "vigor," "valor," "virtue," "victory." To that list add "venerable." To the many that vigorous word connotes only admirable old age. That exclusive usage may be protested. Many years ago was not a newborn babe in Bethlehem hailed as venerable? In that larger sense the subject of this profile is esteemed as venerable. Since to some he has become the "Bernardino Ramazzini" of India, and since this period marks his retirement as Medical Director of the Tata Services of India after years of

Profiles in Occupational Health

Hormusji Pestonji Dastur, M.D.

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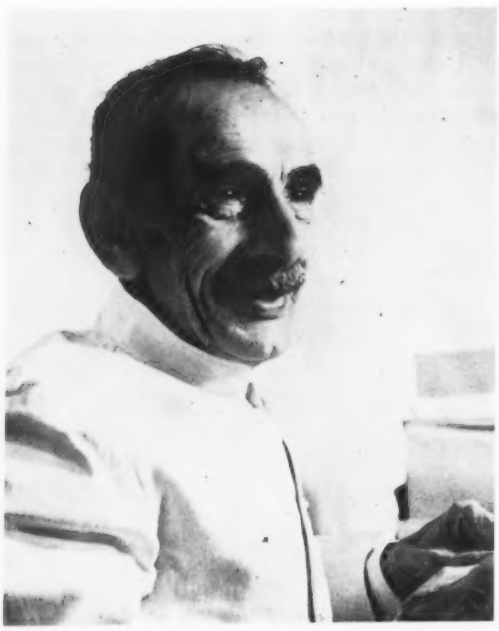

contributions, his occupancy of a place in this series of profiles is beyond challenge.

Profiles sometimes are inclusive of the foibles and fancies of its subjects as well as their facts and figures. The essence not always is sought in the vita. The customary profile is prepared by some intimate who is able to see through the facade into the verities of the man or woman. In this instance, with Bombay so many miles away, the usual procedure has been hampered. Perhaps a better way has been found. This profile is a mosaic of the estimates of some American visitors on his doorstep, some conferees at scientific assemblies and some Tata Services associates. Best of all, Dr. Dastur has been beguiled into exposure of some portions of his bosom but only after protestations springing from his omnipresent modesty. First let the voice of Tata Services be recorded in estimate of its retiring medical chief:

"Dr. Hormusji Pestonji Dastur is not just a distinguished individual serving the Tata Organization. He is something of an institution with Tatas. This description of the venerable doctor

is not meant as a commonplace cliche devoid of any real meaning. For to us in Tatas, Dr. Dastur is synonymous with the Industrial Health Department of Tata Services which he set up 12 years ago.

"A comprehensive program of industrial health comprising medical aid, welfare work, mental hygiene, environmental hygiene, research and extra curricular activities, which this Department implements, today covers 19,000 employees serving in three textile mills, two oil mills, one chemical factory and several units of the three hydroelectric companies in and out of Bombay. The Annual Reports issued by the Department bear out the excellent work done by it in its various fields of activity. The results obtained might not be quite tangible in view of the very nature of the Department's work. But taking into account the difficulties the Department has had to face, its achievements would seem to be considerable. Much of the valuable work done by the Department we owe to the doctor's dynamic personality, his initiative, drive, perserverance, and an almost overpowering sense of mission in his work. Commenting on this, the Tata Monthly Bulletin which is the house organ of Tata Industries said several years ago, 'when he starts talking to you, you realize that you are standing before a fanatic with a fanatism born not of a diseased mind, but that of a social reformer. Dr. Dastur seems to have misinterpreted the Bible about the meek inheriting the earth. He conducts his life on the basis of being outwardly meek and having the best of both worlds. With a mailed fist in a velvet glove, he wears down his opponents by his persistence, keeping on at the same time his cloak of meekness.'

"Dr. Dastur is of the stuff of which pioneers are made. He believes passionately in his cause and has the patience, the tolerance and the faith to believe that he will ultimately succeed because he is right. Being a crusader, he is persistent, ever trying to put across his message to those whose minds he believes are shut and are riddled with ideas of generations past and methods archaic."

What is Management's appraisal of the work and accomplishments of Dr. Dastur and his Department? A typical observation from a Director of Tata Industries who was in close touch with the Department's work — "In the commencement I was skeptical of the value of the program that Dr. Dastur proposed to introduce into our mills and factories. I felt that the work, and the probable cost of it, would not produce commensurate results amongst the labor force, whose home surroundings and mode of life are so unhygienic and primitive, and who, moreover, because of their attachment to agricultural pursuits in villages far from Bombay, are away from the Mills for regular long periods. Dr. Dastur, however, persevered with me, and supplied me with ample literature regarding the results obtained by industrial health organizations in the U.S.A. and the U. K. and other parts of the world. As I saw Dr. Dastur's work develop I became a convert to his views.

"The standard of living and education of the factory operative in India is so low that whilst he may be grateful for all that can be done for him, I do not think that organized industrial health can achieve complete success within the decade.

"If, however, results are to be achieved, they can only be achieved by dedicated men such as Dr. Dastur, whose goodness of nature and obvious deep sincerity, combined with his realism, his sound common sense and his appreciation of the other person's point of view, make one look upon him so affectionately and make me wish to see the work that he first introduced in India prove to be an accepted and successful practice in all large units of organized labor."

Another Director who was personally in charge of the Department feels that while Dr. Dastur's program is eminently practical, based as it is on facts and experiences of industrial health organizations of the West, it would not yield results to the extent expected in the present conditions of Indian industry. He, however, feels that the seed which Dr. Dastur has planted would bear fruit in the next generation. The doctor's beliefs and the pioneer work he has done in the sphere of industrial medicine in India would be vindicated when the aims and objectives of industrial health become part of the accepted way of thinking of the next generation of management and labor in India.

There is a complete unanimity of opinion in the Tata Management insofar as the basic principles of Dr. Dastur's program of industrial health are concerned. Management endorses them fully. There has been no fundamental difference between Management and the Department in their approach to problems that the Department set about to solve. If the Management is critical in its appreciation of the results achieved by Dr. Dastur, it nevertheless has the highest regard and admiration for him. A typical comment from a high executive — "The good old doctor! You may agree with his views or not. But it is impossible not to like him or not to admire him."

Dr. Dastur has served Tatas longer than most other employees. He has rendered the organization 46 years of valuable service. In 1912 the doctor joined as Medical Officer of the Tata Hydro-Electric Companies at the Khapoli Power

House. Leaving Khapoli five years later, he came back to Bombay and became a part-time Medical Officer of the Tata Main Hospital there. In 1946, the Management accepted his suggestion for the creation of an Industrial Health Department. Dr. Dastur, to whom the Department owes its birth and growth, has been in charge of it as the Chief Industrial Health Officer for twelve years now. The 76 year old doctor (born in Broach, Bombay State, in 1882) whose prodigious energy and vigor have not a whit diminished despite so many years of strenuous work, is due to retire from service by the end of this year. His retirement from service however does not mean retirement from study and practice of industrial medicine. There is no doubt that the advice of the doctor, who has done so much to advance the cause of this new science in India, will be continuously sought for by enlightened Indian industrial organizations that believe in the practice of industrial medicine.

Then in this mosaic, a place of distinction is to be found for the notes of one American physician privileged to be at Dr. Dastur's home and medical establishments.

"Dr. Dastur is a quiet, serene, effective man who never lets minutiae disturb his interest in basic plans. He knew when he decided on industrial medicine in India that it was premature in a country in which there were 2,000 available people for every available job. He knew also that men needed to have 'a better place to work' and he felt that they would take pride in it. His first efforts therefore were in the field of plant housekeeping and in personal hygiene. After that he went to the cafeteria and provided them with decent eating utensils even though his bosses felt that the men would steal them and take them home. However, he managed to convince the laborers that they had a very special dining room and that they had very special utensils which they would have to maintain to keep them. Nobody has stolen that first spoon. From there he went into the usual occupational hazards of the steel industry and the oil extraction industry. He talked freely to management and he had no hesitation whatsoever in telling them when their judgments were wrong. He did this in a quiet, skillful and humorous way which was effective in the light of the industrial development state of his country. At 76, he has the vigor of 50 and the keen alertness of 35."

The most poignant portion of this record is to be found in Dr. Dastur's notes about himself:

"I graduated from the Bombay University in 1904 and obtained the degree of L.M. & S., the only medical qualification then available in the Bombay State. I was then 22 years old and am 76 today. I was born in August, 1882.

"One of the memories that comes back to me vividly is an advice one of my professors gave me the day after I passed out. He asked me to keep reading magazines but as one cannot read everything that appears in every magazine, he advised me that if I ever come across a severe criticism of an article I should not miss reading that article. There is likely to be something original and useful about it. My experience has been that there is some truth in this advice.

"I started my medical career as a doctor on a ship carrying Haj pilgrims to Mecca. I was about six months on the high seas, but had little work to do. Half the number of pilgrims seemed to think that I was a schoolboy posing as a doctor, and I could not understand the language of the remaining half as they came from far off places like Assan and Baluchistan. Nor was anybody bothered whether I worked or not. I was there mainly to satisfy the letter of a law which demanded that there must be a doctor on board a ship if it carries a certain number of pilgrims.

"After that I worked as a houseman in a private hospital for nearly two years. The duty I was given on the first day was to take the place of the telephone boy as he was absent, but I managed to look at the humorous side of it, and right up to today I use this incident when I have to handle grievances arising out of false dignity.

"Another episode that comes back to me is the memory of a ward-boy and his humor. The motor car had not reached Bombay at that time. Those were the days of horse and buggy. As long as the pay lasted, and it never did beyond a fortnight or 20 days, I would ask this wardboy to fetch me a conveyance whenever I went out of the hospital. After that I had to do it walking and, with a roguish smile he would offer in the presence of others to fetch a conveyance for me.

"Thereafter I worked as an assistant to a private practitioner. He had a wide practice among all classes — upper, middle and poor. The different type of treatment I received from each of these three classes is worth noting. For giving outside visits I had no conveyance of my own, and the chief was so busy that he could not spare me his, and I had to depend on hired conveyance. When visiting upper class clients, very few among them would accompany me to the gate on my departure and, when they did, even though their private carriage may be waiting at the gate and I may have come on foot, it was a rare event for any of them to offer it to me. The middle class clients would generally see me off at the gate and if they saw that I had come in a hired conveyance, a few among them would

feel constrained to ask me whether carriage hire was to be paid. There were however a good few among the poor class clients, who could least afford material appreciation of my services, who showed it most. They would accompany me to the carriage and when it started moving, would embarrass me by telling me that carriage hire had been paid.

"In this private practice I had once to do night duty for several weeks over the illness of a millionaire's wife. This brought me enough cash to start private practice on my own. Clients were slow in coming, and my restless spirit could not brook it, and as my club was nearby, I spent more time in the club playing tennis and bridge than in the clinic. Lacking a sense of the responsibilities of life I decided that the venture was a failure and as the bank account still showed enough balance to satisfy my itch for travel and adventure, I decided to undertake a study tour in Europe. This was in 1910. But the balance was limited — just enough for a diploma course in Midwifery at the Rotunda Hospital, Dublin. And as I had somewhat neglected midwifery as an undergraduate I decided to take this course. That was the only reason I preferred to go to Ireland than to any other place.

"I returned from Dublin with a small debt on my head. This ruled out private practice. So I looked out for a job, but nothing turned up for nearly 14 months. Fortunately for me the communist creed had not yet raised its head. If it was there I would have joined it, if for nothing else, to give vent to my bitterness and my energy. What hurt me more was being jobless rather than penniless. At last in October, 1912, a job came my way. The Tata Hydro-Electric Co. had started building a power house at Khopoli and they wanted a doctor for their camp there. Thus started my 46 years old connection with the Tata Organization.

"The humorous side of the Khopoli job was that, to start with, I had as my living quarters only two outhouses without doors or windows, and sometimes donkeys, used for carrying loads, came in at night and slept with me. But here was a tragic side too.

"I was brought up in what may be called a sheltered house. I had no opportunities to see the ugly side of life and I was taught that, thanks to the British rule, everything in the country was as it should be. But five years at Khopoli gave me a rude awakening.

"Within a five-mile radius from the Tata dispensary there was no other medical aid center. So a few months after starting, the number of villagers visiting the Khopoli dispensary was more than double the number of company employees. I had often to visit the neighboring villages and I was appalled at their poverty and squalor. My first contact with the home life of an industrial worker also started here, and everything did not seem right with him also. And for the first time I came across people who criticized British rule. Something was wrong somewhere, but what I could not say until, a few years later, I began reading Mahatma Gandhi's weekly *Young India.* This brought light and I was ready to join his movement.

"At Khopoli and later on in my private practice I could divide my patients into three groups. Some thought of me as a God, some as a devil, but the bulk of them mercifully allowed that I was an average human being. But I was often inclined to analyze my failures and successes and could not help concluding that there was something lacking in my training as a doctor. That that something was the need of human touch in handling people began to dawn on me when I was at Jamshedpur for six months in 1920 as the acting head of the Tata Main Hospital, for the permanent incumbent had suddenly taken seriously ill and was ordered six months' leave.

"I left Khopoli in 1917 to start private practice in Bombay in an industrial locality. In the beginning the going was rough, but I fortunately secured a job in Tata Mills as a part-time doctor. The Tata Hydro-Electric Companies had extended a great deal by then. They had three power houses with a medical center at each of them, and a few months after my leaving Khopoli they gave me a job as a consultant for all their medical centers.

"Within about five years I was one of the leading practitioners in my locality, but that brought me no comfort. A feeling was growing on me that I was fattening on poor people's money without doing them any lasting good. The bulk of my practice was to treat industrial employees and their families for preventable diseases like malaria, dysenteries, intestinal worms, infectious diseases, and so on. The higher my earnings went, the greater my yearnings became to switch over to preventive work, and my work at Tata Mills showed me an opening, as also my appointment in 1932 as medical referee to the Millowner's Mutual Insurance Association which undertook the work of rehabilitation and compensation of employees injured on work.

"In my job in Tata Mills I was only giving curative aid. I missed no opportunities to plead with my employers that such aid was a liability to them, but if preventive medicine were added it might prove an asset. I was hard put to convince them till Government appointed a commission to go into the working conditions of

textile workers. My Managing Director was a member of the commission, and I was a witness. My evidence was not such as would suit the general views of the millowners, and so my boss came under their mandate to cross-examine me and break my evidence. He attempted this for three hours, but both of us stood firm on our ground. I felt I had lost the Tata Mill job, but soon after the court rose, my boss called me and informed me that to please his comrades in the Millowners' Association he had to handle me roughly, but that he together with the other members of the commission felt happy about my evidence. At last he was converted and was ready in 1944 to start an industrial health department if I was ready to give up private practice and take a full time job as the head of the department. I did so willingly but that led me into another disillusionment.

"My enthusiasm had overreached my experience. I did not know what to do and where to begin. I searched every library in the city for a clue. Woe-begotten, one afternoon I was searching in the library of the United States Information Service. The librarian was an old American lady. She must have noticed my distress. With motherly gentleness she offered help. I poured out my woes to her. She showed me a chair and asked me to sit down till she came back, and so she did with a copy of the *National Safety News*, of America, and the *Journal of Industrial Medicine and Surgery*. She advised me to contribute to these magazines, read them carefully, especially the reviews of books and build my own library. This is what I have been doing since 1946, and blessing her all the while, for it did the trick.

"This however did not end my troubles. Despite gathering passable knowledge of the right type of know-how I could make no progress. It was soon evident that management and I were talking different languages. Each had to learn the language of the other, and how that was done can be culled from the annual reports of the Departments and some of my publications, and the accompanying copy of a paper which the sponsors of the Joint WHO/ILO Conference on Industrial and Occupational Health have asked me to present at its meetings to be held from next November 24th till December 6th. If they make anything clear it is the importance I lay on training. And after my retirement next December, I intend to give priority to teaching work. In fact I have already started from this month as a part-time lecturer in two courses in Business Management, one run by Victoria Jubilee Technical Institute and another by the Bombay University.

"Regarding my English, in my childhood days any parents who wanted their child to go to the university had to teach him English from the first day of his schooling. Moreover, one of my uncles was a university professor of mathematics, but fond of English literature. He had built a library for himself and he took the trouble to induce me to make use of his library."

In another communication Dr. Dastur, almost as a footnote to the foregoing, writes a little shyly and coyly:

"1. It is almost 30 years that I am a prohibitionist.

"2. Though I am connected with three textile mills, I do not use their cloth but wear 'Khadi' which is hand-spun, hand-woven cloth. I do so because I feel that cottage industries need encouraging in the present economic condition of the country."

It may not be urged that occupational health is far advanced in India. But that country and others near to it are astir and in motion. Time will advance occupational health in those countries tremendously. When that time comes, a look over the shoulder will reveal a stalwart figure, the father figure of all occupational health for that part of the world — Dr. Hormusji Pestonji Dastur — a legend in his own days.

Chlorinated Hydrocarbons Study

Deane N. Calvert and Theodore M. Brody of the University of Michigan Medical Center, Dept. of Pharmocology, have shed new light on the mechanism of chemical poisonings. Their study of the toxic effects of carbon tetrachloride may lead to improved treatment for persons poisoned by a wide group of industrial chemicals known as chlorinated hydrocarbons. They found that these chemicals themselves are not poisonous, but that they trigger a massive and prolonged discharge of adrenalin within the body. The resulting upset of the system can severely damage the liver and may prove fatal.

The researchers have traced a definite chain reaction; the carbon tetrachloride, they found, affects the brain which then orders a wholesale discharge of adrenalin. This somehow breaks down the body's stored fat and fills the bloodstream with fatty acids. At the same time, it impairs the blood flow to the liver so that organ cannot function normally.

The researchers discovered that they could interrupt this chain reaction simply by blocking the signals from the brain. When that is done, test animals show no ill effects from near-fatal doses of carbon tetrachloride.

Industrial Health Conference

The 44th Annual Meeting, Industrial Medical Association

April 25 to May 1, 1959

Hotel Sherman, Chicago, Illinois

The Industrial Health Conference is shared by five organizations devoted to occupational health, the American Industrial Hygiene Association, the American Conference of Governmental Industrial Hygienists, the American Association of Industrial Nurses, the American Association of Industrial Dentists and the Industrial Medical Association.

It was the 44th Session of the Industrial Medical Association, oldest member of the Conference. This report is limited in its coverage to the activities of the Industrial Medical Association.

Association Officers

H. W. LAWRENCE, M.D., President of Industrial Medical Association during 1958-1959, upon the expiration of his term of office at the end of the Chicago session, was succeeded by D. JOHN LAUER, M.D. Other current officers of the Association are: R. E. ECKHARDT, M.D., President Elect; GRADIE R. ROWNTREE, M.D., First Vice President; H. GLENN GARDINER, M.D., Second Vice President; LEONARD ARLING, M.D., Secretary and JOHN L. NORRIS, M.D., Treasurer. The newly elected Directors for the Industrial Medical Association Board for 1959-1962 are: EDWIN DeJONGH, M.D., JAMES P. HUGHES, M.D., O. TOD MALLERY, M.D., LOGAN T. ROBERTSON, M.D., and RICHARD C. SWAN, M.D.

At the end of the Chicago session STEPHEN G. HALOS retired as the Director of Exhibits.

Since 1942 EDWARD C. HOLMBLAD, M.D. has been the Managing Director of the Association. This year of 1959 marked his retirement. Replacing DR. HOLMBLAD as the Managing Director is CLARK D. BRIDGES, formerly the Assistant Managing Director.

Scientific Sessions

As is customary, the early portion of the Industrial Medical Association program was devoted to medical and surgical clinics. Outstanding in the series were "Surgery of Trauma", color television of operations and case presentations, St. Luke's Hospital, Chicago, B. C. KILBOURNE, M.D.; "Fracture Clinic", Surgical Amphitheater, Cook County Hospital, Chicago, C. SCUDERI, M.D. and J. J. CALLAHAN, M.D.; and "Rehabilitation Clinic and Visit to Facility", Rehabilitation Institute of Chicago, B. J. MICHELA, M.D.

The 1959 Sappington Memorial Lecture, "Scurvy as an Occupational Disease", was presented by CAREY P. McCORD, M.D.

Notable items in the scientific program were a joint session with American Association of Industrial Nurses, "Dilemmas of the Occupational Physician in Mental Health Programming" and "Windsor Medical Services, Inc.", R. B. ROBSON, M.D.; "The Interrelationships of the Kaiser Foundation Health Plan with the Industrial Medical Program of the Kaiser Steel Corporation", H. A. LEWIS, M.D.; "Somatic Effects of Radiation", AUSTIN M. BRUES, M.D.; "Radiation Protection — Standards and Laws", JOHN W. HEALY; "Alcohol in Industry", three six-minute talks; "Medical Criteria for Motor Vehicle Drivers", HAROLD BRANDALEONE, M.D. and SEWARD E. MILLER, M.D.; "Reconstructive Treatment of the Crushed Hand", MICHAEL L. MASON, M.D. and JOHN L. BELL, M.D.; "The Multiple Injury Problem", CARLO SCUDERI, M.D.; "Some Practical Aspects of Disability Evaluation", LEMUEL C. McGEE, M.D.; "The Rehabilitation Center's Function in a Community", B. J. MICHELA, M.D.; "Plastics — The Toxicology of Synthetic Resins", REX H. WILSON, M.D. and "Followup of Inguinal Hernia Repair with Tantalum Mesh", CHESTER C. GUY, M.D.

Awards

The traditional awards were announced and presented at the Annual Banquet. The Knudsen Award was presented by E. A. IRVIN, M.D. to LEMUEL C. McGEE, M.D. for continuing distinctive

contributions to occupational health. RICHARD A. SUTTER, M.D. presented the Health Achievement in Industry to Kaiser Steel Company Fontana (California) Works. The Citation for Merit in Authorship was presented by RALPH F. SCHNEIDER, M.D. to WILLIAM J. FULTON, M.D. for a series of publications appearing in this Journal entitled "Medical Department Layout and Design." The Award for Meritorious Service was given to LOGAN T. ROBERTSON, M.D. for contributing in outstanding fashion as Chairman of the Membership Committee which enlisted 805 new members.

In addition to this augmented membership, 87 new Fellows of the Association were installed during the annual business meeting on Wednesday afternoon.

Exhibits

This year the scientific exhibits were superior both in number and quality. Awards were made to four scientific contributors, "Misleading Thoracic Roentgenograms", C. H. HODGSON, M.D., J. A. CALLAHAN, A. J. BRUWER and A. H. BULBULIAN, O.D.S., Mayo Clinic and Mayo Foundation. "Bacterial Air Samplers", U. S. Army Biological Warfare Laboratories. "Marlex Mesh: A New Plastic Mesh for Replacing Tissue Defects", FRANCIS C. USHER, M.D. "Silicosis Program on Coal Mines in Pennsylvania", JAN LIEBEN, M.D. and E. F. BAIER, Pennsylvania Department of Health.

Annual Banquet

At the Annual Banquet the retirement of EDWARD C. HOLMBLAD, M.D., as Managing Director of the Association was noted. For the purpose of honoring DR. HOLMBLAD, effort was made to have present all of the living past Presidents of the Association. Many did attend and the minority not able to be present provided appropriate letters or telegrams which were read to the assembly. All of the past Presidents in attendance addressed felicitations to DR. HOLMBLAD. The occasion was without precedent in the annals of the Industrial Medical Association. During this period ROSS MACINTYRE, M.D. presented to DR. HOLMBLAD a citation for distinguished services to the President's Committee on the Handicapped. DR. HOLMBLAD was presented a check in substantial amount serving as a token of the affection of the Membership and Fellows of the Association for "Mr. Industrial Medicine." DR. HOLMBLAD gratefully and graciously acknowledged the homage paid him during this auspicious dinner.

This Journal's appraisal of the significance of this event appears as a long editorial in the May, 1959, issue.

Toxicologic Research

The need for more toxicologic research to help protect the growing number of workers exposed to potentially dangerous industrial chemicals was stressed by David E. Price, M.D., Assistant Surgeon General of the U. S. Public Health Service. Speaking before the American Conference of Governmental Industrial Hygienists at the Industrial Health Conference, Dr. Price said: "We believe that a first step is basic research to develop more efficient methods of toxicologic evaluation. One such need is for the development of adequate testing procedures which will permit prediction with greater accuracy of the effects of long-term exposures. Also needed is the development of diagnostic procedures which, when applied to man, will detect changes long before permanent change has occurred."

Dr. Price reported that the Occupational Health Program of the Public Health Service has recently begun work in this field of preventive industrial toxicology: "The research which resulted in the discovery that vanadium poisoning can be detected by changes in the fingernails long before any clinical symptoms appear is the first fruit of a program that we hope will yield many other equally valuable findings in the coming years."

Pointing to the increasing occupational exposures to radiation, Dr. Price indicated that in at least one industry — uranium mining — the protection now available to workers is not yet adequate. He said that a study underway by the Occupational Health Program has revealed that 64% of the miners in the Colorado plateau area, site of most uranium mining, are exposed to dangerously excessive concentrations of radiation, at least fivefold in excess of the desirable working standard.

Dr. Price emphasized that better application of existing knowledge can accomplish much even now. A study of Public Health Service hospital personnel exposed to X-rays and other sources of radiation showed a significant reduction, following initiation of a film-badge monitoring service, he said. In a six-month period, there was a decrease of needlessly large exposures from 31 to three.

Medically Irrelevant

The instruments photographed in the April issue are "gaffs" to be attached to the spurs of fighting cocks. These originated in Haiti. Their use is now technically outlawed in that country.

No reader, we are sorry to say, properly identified these objects.

Letters

To The Editor:

I have noted with interest your article titled "Lead Shot Towers in America" which appeared in the December, 1958, issue of *Industrial Medicine and Surgery.*

I wish to commend you for this very comprehensive review of the past to the present which you have presented in such an interesting manner.

The least I can do for the service you have rendered to our industry is to overlook one very important omission I discovered at the close of your article, because I am sure this was not intentional on your part.

In your mention of the modern shot towers in the United States, you should have included the Illinois Lead Shot Company's shot tower, located at Summit, Illinois, which was built in 1956. This shot tower, therefore, is the newest and most modern in existence.

As you have so well explained in your article, the basic principles of shot tower manufacture have not radically changed. However, the advantages accruing from modern automation have obviously been introduced into our sequences of handling operations appertaining to sizing, grading and packaging, thus resulting in improved efficiency of manufacture.

In view of the interest you have shown by authoring the aforementioned article, we thought you would be interested in the above comments and also this acknowledgement of having read your article.

—Illinois Lead Shot Company
J. A. STONE
President

To The Editor:

Because 40% of our industrial medicine is of a dermatological nature, I, as a dermatologist, am very interested in a recent article which appeared in *Industrial Medicine and Surgery*, January, 1959, (Volume 28, No. 1), "Evolution in Chrysler Corporation's Medical Department."

This article was presented because it was to be an example of Chrysler's contribution to occupational health and was to exemplify how this department "has earned an essentially autonomous status within the corporation."

The purpose of this letter is to challenge the statement that the medical department "has earned an essentially autonomous status within the corporation" and also to criticize the table of organization which is established not only by Chrysler Corporation but by large corporations as a whole, including the military services, in which the medical department is placed in a subservient position. This subservient position now held by the medical department is depriving the company of the most advantageous utilization of the medical services at hand.

The word "autonomous" meaning "independent in government; self governing; without outside control; existing independently; responding or reacting independently of the whole"; (Webster's Dictionary) is the status which should be held by the medical department and its staff. However, in the organizational chart illustrated in *Industrial Medicine and Surgery*, it is obvious that the medical director and the department is subservient to the corporation which when one considers the responsibility placed on the medical director, department and staff is certainly a transfiguration in the wrong direction.

I feel the medical director is of such importance to the company that he, as representative of the medical department, should be an integral member of the board of directors. This medical director, after all, is specially trained in medical administration and through his staff gives competent medical care to the members, thus establishing a good relationship between the employer, employees and various industrial unions. This relationship, as is being demonstrated daily, is an essential to the successful administration of the company.

Many responsibilities are placed upon the medical director and his staff fulfilling the many health needs of the large number of employees within the company. Also, they usually are in charge of the health insurance program of the company. The responsibility of administering various drugs to many employees, the preventive measures of giving immunizations, such as, poliomyelitis, small pox, tetanus, etc., is placed upon the medical department. The medical director and his staff are also in charge of the public health section, controlling the water supply, sewage control and preparation of food within the cafeteria. Each one of these is a potential threat to the health of the employee if not properly controlled. This highly specialized service provides continued protection to the industry, to the employer, and to the employees; consequently, the medical department should hold a position within the company, meriting the proper respect due this profession.

It is my feeling that the medical director should be answerable only to the officer in charge of the company, not other subservient departments; should be on the board of directors, thus receiving salary and stock benefits rightly due his status within the corporation.

Obviously, I strongly favor that the medical director and his department be given an autonomous status within every corporation where such professional service is required and called upon.

Anticipating seeing a transfiguration of the medical professional man to his proper status, I am,

Sincerely,

—HENRY G. MORGAN, M.D.

Books

Action of Radiation on Tissues

by *A. Lacassagne and G. Gricouroff* (New York: Grune & Stratton, Inc., 1958) $6.25

This book is portrayed and perhaps betrayed by the language of its translators: "This translation was made because American radiopathology suffers from an obscurity of its sources, resulting, for the most part, from a scarcity in English of adequate analytic condensations of the early fundamental investigations carried on in Europe. Few living Americans are still broad enough in their radiopathologic interests and have enough historic insight, as well as the time, to synthesize a critical review of the research in radiobiography carried on from 1892 to 1942. Moreover, few modern American students and investigators are fluent enough in foreign languages to obtain more than the bare meaning from a foreign article. As a result, the usual 'review of the literature' reads like a condensation of Nuclear Science Abstracts. The review of Lacassagne and Gricouroff translated here is not only very comprehensive, but is colored throughout by analytic comments stemming from their years of extensive investigation and clinical practice. The first edition was, unfortunately, lost to us through World War II and, since then, through the scarcity of copies of the book. Recently the authors extended the coverage of the book by bringing the references as up-to-date as possible in a new edition, thereby relating the preatomic bomb research reviewed in the first edition with the enormous amount of radiobiologic research now going on in America."

After this ungracious estimate of the radiobiologists of America, perforce the contents must measure up to the translators' superlatives in order to motivate hearty acceptance by those not too gently condemned. Despite the besodden ignorance of this country's radiobiologists, there is a mild rumor hereabouts that the United States had something to do with the development of the first atomic bomb.

The format of this book, apart from its binding, has little appeal. The makeup suggests a backdating to 1924. The heavy black line that surrounds the title page may be a portent of significance beyond the intentions of the printer.

Therapeutic Radiology

***by William T. Moss* (St. Louis: C. V. Mosby Co., 1959) $12.50, illustrated**

Rare is the circumstance that calls for therapeutic radiation in industrial medical programs as carried out on the plant premises. Just to be dogmatic, the assertion is made that as to application the contents of this book are not for the industrial dispensary. Therapeutic radiology belongs to the hospital and the radiologist's office. Notwithstanding all, that is but a small portion of values proffered by this book. The good industrial physician ever is the worker's health counselor. When the prospect of surgical operations or Roentgen therapy for an industrial workman, far more often than for the general run of counseling, the industrial physician is likely to be consulted, regardless of the source of the ministrations contemplated. Right there is where this book may become invaluable to the industrial medical department. Organ by organ, system by system, disease by disease, the author appraises the promises of radiology in therapy.

For the industrial physician this book is but a Baedeker into a little visited land but for some other medical groups and notably for the roentgenologists, *Therapeutic Radiology* is that land itself.

Readings in Psychoanalytic Psychology

***by Morton Levitt, et al.* (New York: Appleton-Century-Crafts, Inc., 1959)**

It is not necessary that any physician be an ardent devotee to psychoanalysis to admire and profit by publications on psychoanalysis. As a cultural path this book invites meanderings. This appraisal seems to have been anticipated by the book's author who in the introduction includes this passage: "Similarly, the treatment of psychoanalysis by most graduate and medical departments seem to place it in the category of a subject which is treated as alien to the main stream of behavioral science but nevertheless related to it in some strange, mysterious and interestingly foreign fashion. Some academicians have argued that psychoanalytic contributions, originally stimulating and provocative, have now been outlived; others maintain that the therapeutic rationale may be justified by treatment results, but epistemological considerations rule it out as a valid science These two approaches usually result in a remarkable strange phenomenon; i.e., that psychoanalysis is often considered a more vital issue in departments of English than in other seemingly more appropriate departments. And even though there are some notable exceptions, academic scientists tend to treat psychoanalysis as a grafted-on section rather than as an integral development in the anatomy of psychology. The notable exceptions to the above generalization seem to be concentrated in the clinical fields of psychology; here the relationship between psychoanalysis and psychology seems to be a somewhat more comfortable one. Yet even here the feeling persists that there is some uneasiness marring the marriage."

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NUMBER 6

Military Occupational Health

Many persons have difficulty associating occupational health activities with such pursuits as military endeavors. This is not true for those in command of military affairs. As one evidence that this is the case, reference is made to the Annual Report of the Surgeon General of the U. S. Army for the fiscal year of 1958. One section is devoted to "Occupational Health" and a subsection is captioned "Occupational Medicine." That portion is here quoted in its entirety: "Occupational medicine — In order to provide better medical control of the environment through the use of physicians trained in occupational medicine, action was taken to establish a residency training program in occupational medicine at the U. S. Army Environmental Health Laboratory. The proposal was approved by the Education and Training Division, Office of the Surgeon General, and action was taken to have the laboratory approved by the American Medical Association. This will provide a suitable institution in which to train Army medical officers in occupational medicine.

"With a view to providing better control in the selection and elimination of military personnel, a pilot study was initiated to determine the feasibility of conducting an audiometric examination of all personnel upon entrance to and release from active duty. With modern electronic audiometric equipment a large number of persons can be screened rapidly. The procedure will eliminate disability compensation claims brought against the United States for alleged hearing loss while on active duty. In addition, it will provide a wealth of scientific data which will further aid in the control of environment.

"During the year a problem arose in the handling of missile fuels and oxidizers. Several fuel handlers began to show adverse effects as a result of handling one of the exotic fuels, unsymmetrical dimethylhydrazine. An extensive and intensive investigation was conducted by the Chief, Occupational Health Branch, Preventive Medicine Division, OTSG, the commanding officer of the USAEHL, and one of the consultants to The Surgeon General in occupational medicine. Inasmuch as more exotic and possibly more toxic missile fuels are being developed, medical and engineering control of this hazard is becoming more necessary. The Preventive Medicine Division has established a continuing project to monitor the problem and to assist in providing a solution.

"During the fourth quarter of fiscal year 1957, several individuals who had worked on the Coast Defense Light project during World War II

claimed that the radiation from the searchlights had caused them to be sterile or to suffer genetic damage. A full-scale investigation revealed that there was no scientific basis for the claims. Although the lamps emit some ultraviolet rays, such radiation is weakly ionizing and will not produce genetic damage. The operating voltage of the lamps was too low to produce x-rays. This information was submitted to the Secretary of the Army and was subsequently released to the public."

Synthetic Asbestos

Along comes some brilliant chemist having synthesized some useful substance and the whole world may be changed. This was strikingly true with the advent of synthetic dyes. To a lesser extent it was true following the synthesis of rubber. Henry Ford startled the world by his promise of synthetic cow's milk — a prospect that did not free all cows from their duty to mankind. Entire economies have been disrupted by the arrival of synthetic substitutes. The natural indigo industry, for example, was destroyed by its superior synthetic counterpart.

Add to this list the possibility of synthetic asbestos. This does not mean that promptly all asbestos mines will be boarded up as so many sandstone industries were when carborundum and emery made most sandstone abrasive products obsolete. But it does mean that some achievement has come about in artificial asbestos. Shell, Comeforo and Eitel, writing under the title of "Synthetic Asbestos Investigations," note in the introduction to one of their papers the following: "To obtain a better understanding of the crystallization of fluoride containing amphiboles from melts, an investigation of the range of stability between fluoramphiboles and other minerals was conducted by the Bureau of Mines. This study has shown that the stability of fluoramphiboles is strongly influenced by both fluoride concentration and isomorphic replacement.

"Over 150 reactions were made with different compositions and reaction conditions. Substitutions attempted and the phases that formed when the composition was crystallized by cooling from the melt are discussed. The attainment of equilibrium in these multicomponent systems is not claimed. Many ions that would be expected to enter the amphibole structure instead resulted in crystallization of phases other than amphibole. Some compositions resulted in a high yield of acicular fluoramphibole by crystallization from the melts."

The wan hope of industrial toxicologists long has been that synthetics will prove to be free of the harmful properties of their natural predecessors. This is seldom true. The rise of synthetic dyes brought about a world of perils in their manufacture, undreamed of in the lowly indigo plant.

Neglecting Care?

Up to one-third of union families ignore top medical care despite extensive health insurance protection. So finds nonprofit Foundation on Employee Health, Medical Care & Welfare, Inc., established by Machinists' union and U.S. Industries, Inc. Survey covers New York area, said to enjoy best health insurance coverage in country. Of union families surveyed: 33% consult doctors not associated with recognized hospitals; 25% use nonaccredited hospitals; 25% consult medical "specialists" lacking professional certification.

Moreover, 60% not insured for office or home medical visits; only 50% get all costs paid for medical care involving hospitalization. Findings touch off national survey by Foundation. Question: Are 89 million health-insured persons getting top protection for $2 billion spent annually? Columbia U. medical center, U. of Chicago National Opinion Research Center are assisting in survey.

—*Industrial Relations News*, January 24, 1959.

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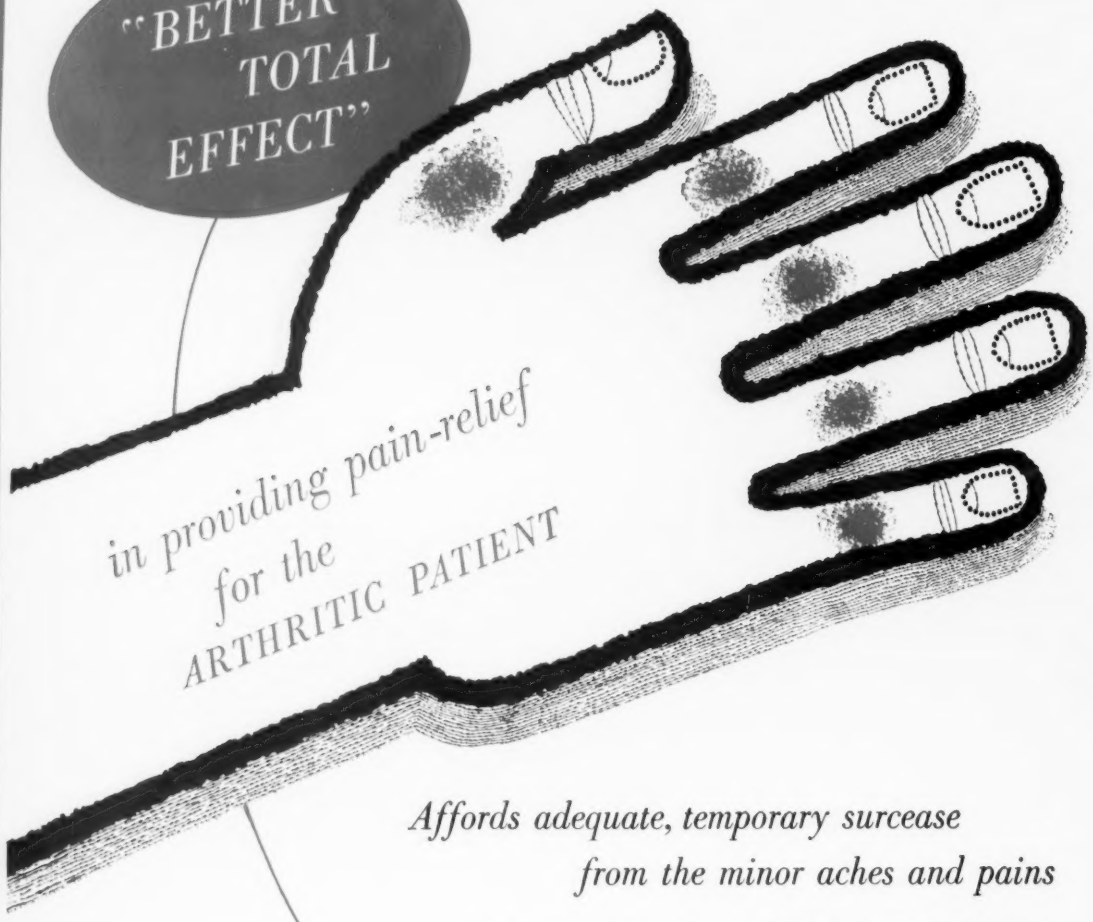

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Reference: 1. Hardy, James D.: *The Nature of Pain*, Journal of Chronic Diseases, Vol. 4, July 1956.

COMMENT AND OPINION

Fume Case

The claim of a former Kaiser Aluminum and Chemical Corporation employee seeking state industrial insurance that fumes at the plant affected his health has been taken under advisement by Judge Hugh H. Evans after a superior court hearing.

Clarence L. Arnold in early 1957 filed a claim relating to an asthmatic condition. He said he had worked in the aluminum plant pot room. His employment dated back to 1947. The supervisor of the department of labor and industries rejected his claim.

Arnold took the matter before the state industrial insurance appeals board and it was stipulated that work conditions had "aggravated a pre-existing latent condition of bronchial asthma."

The department then allowed him a rating of 25% of permanent partial disability. Kaiser then appealed and the appeals board held Arnold was not entitled to a permanent partial disability award on the basis of medical testimony and directed the supervisor not to allow it.

—*Spokane* (Wash.) *Spokesman-Review*, April 17, 1959.

Industry Deaf

An eminent ear doctor took a few verbal swipes at industry for its apparent unconcern over the growing menace of hearing impairment.

Howard P. House, M.D., Clinical Professor of Ear, Nose and Throat Medicine at the University of California, said that 10% of the population in America suffers from some type of hearing impairment and much of the cause is due to the careless design of machinery.

Dr. House emphasized three points of control that would help in stemming the increase in ear troubles.

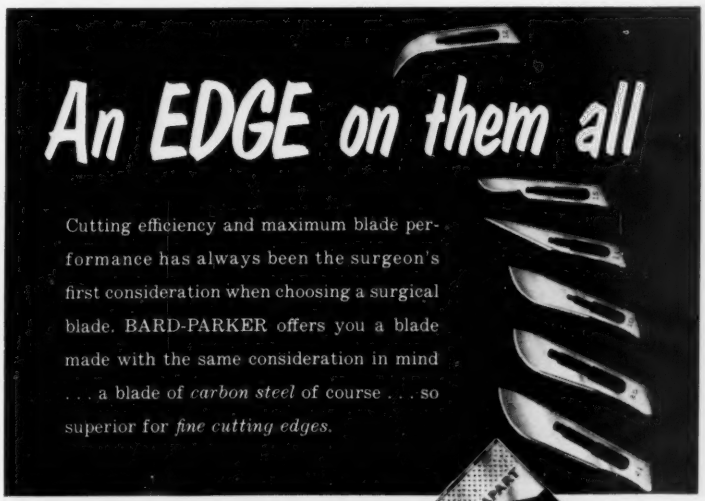
"I think we must educate the engineers who design equipment to make machines quieter," he said. "In many cases plastics can be substituted for iron and steel. Plastic gears, for example, don't make the sort of screeching noise that's so damaging.

"Factory buildings should be designed to isolate much of the noise into an area away from the worker.

"And the worker himself must be educated to use a protective device in his ear — the best I think being a piece of cotton saturated with Vaseline, which would keep the high pitched noises out but allow him to hear the ordinary sounds."

Dr. House, in his work with the Los Angeles Police Department, was able to glean considerable data on the effects of loud noises on the hearing mechanism.

"The boys in the department had rigged up a target range to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sharpen their aim, but they made the mistake of doing their firing under a shed," he related.

"When they fired, the noise was deafening and a lot of the officers were losing their hearing — suffering ringing in their ears — because the noise banged around the shed and was virtually blasting their eardrums. I suggested they move out from under the shed, insert tight ear plugs in their ears and then start firing. You'd be surprised how quickly their troubles disappeared."

The same sort of thing befalls the soldier on the firing range, he said. Some 27% of the GI's who go through machine-gun drills and the like come out of it with some form of hearing impairment.

"And this could easily be prevented by the mere use of an effective ear plug that would protect the hearing nerve," Dr. House declared.

But once the hearing nerve is involved, it's too late for medicine to help. "Thus the treatment lies in preventive medicine — preventive measures to prevent nerve loss," he said.

High velocity noise is one condition to be avoided, Dr. House said, but it is also important to know that certain types of high-powered drugs can impair the auditory nerve, too.

"If a person has a certain sensitivity to particular drugs, some of the antibiotics, for example, these can damage the hearing nerves," Dr. House pointed out. "So, the physician has to be careful . . . often it's possible for a patient to take these drugs orally without any effect on the hearing mechanisms, but then again, when taken by injection they can be very damaging."

—*Little Rock* (Ark.) *Democrat*, April 13, 1959.

Executive Preservation

A group of Chicago executives heard what they must do to escape some of the health threats associated with their management responsibilities.

They were guests of the American College of Physicians which opened its 40th annual meeting in the Conrad Hilton hotel in April with a program on "The Care and Preservation of the American Executive."

Approximately 200 business, church, labor and civic leaders attended the symposium at which talks were given by eight of the nation's top internists. The occasion marked the first time the college has opened its conferences to laymen.

There were discussions of numerous diseases, especially the ones linked with pressure and tension, to which the executives are presumed to be special occupational prey.

Talks also were given on arthritis and rheumatism, emotional disturbances, high blood pressure, cancer, ulcers, heart disease, dividends from medical research, and how to prepare for an enjoyable retirement.

William C. Menninger, M.D., of Topeka, Kan., internationally noted psychiatrist, said it is an accepted fact that all persons have a "breaking point," and that whenever the pressure is

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great and lasts too long, the exposed person begins to "bend and break."

"The rat race that every executive has to follow is the source of much stress," Dr. Menninger said.

It also has been estimated, he said, that approximately 80% of the problems of business "are brought from the home to the business."

Hate in the form of resentment, selfishness, thoughtlessness and jealousy causes most of the world's troubles, he said. Executives seeking to reduce tension in their lives should reevaluate their priorities.

"So many people become trapped in working for secondary goals," Dr. Menninger said. "Develop multiple sources of satisfaction including an avocation.

"Find a constructive mission in life, quite apart from a vacation. Accept the fact that security is something one must work for. If one achieves it too completely, he will lose his zest for life."

The increases in crime, absenteeism and alcoholism are all evidences of the tensions under which we are living, Dr. Menninger added.

"You will be a lot better off if you have some place to have fun outside that office," he said.

Dr. Henry L. Bockus of the University of Pennsylvania Graduate School of Medicine, Philadelphia, in his talk on "Preparing for a Productive and Enjoyable Retirement," said the wise man does not accept retirement, and does not think or talk retirement.

"No one can actually retire the person who won't withdraw," he said. "That person will continue to learn and, above all, to render service to others."

—Roy Gibbons in *Chicago Tribune*, April 21, 1959.

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1. Kuba, E. F.: First Stage Treatment of Burns and Prevention of Shock, Indust. Med. 12:369-371 (Aug.) 1958.

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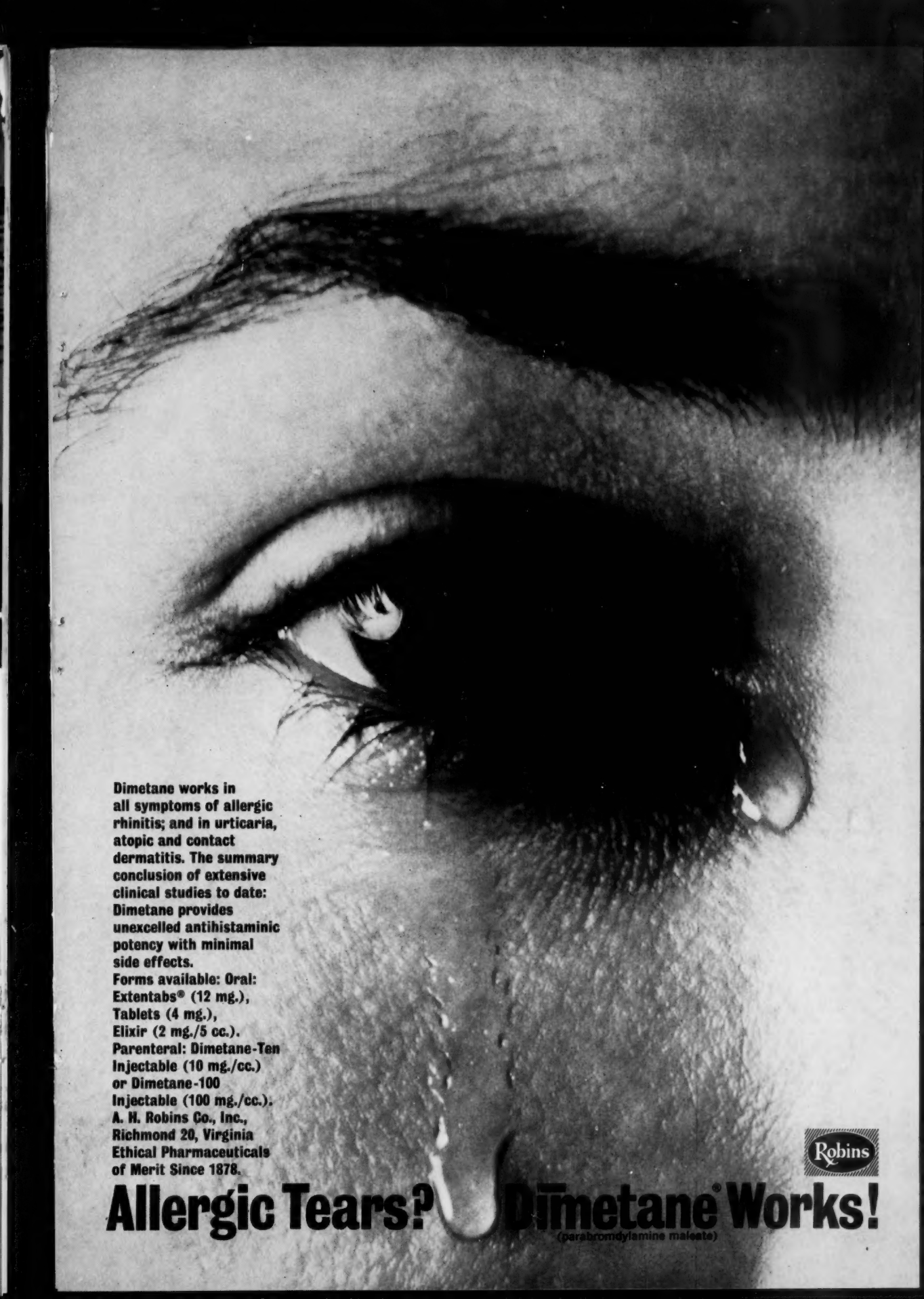
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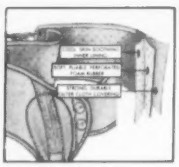

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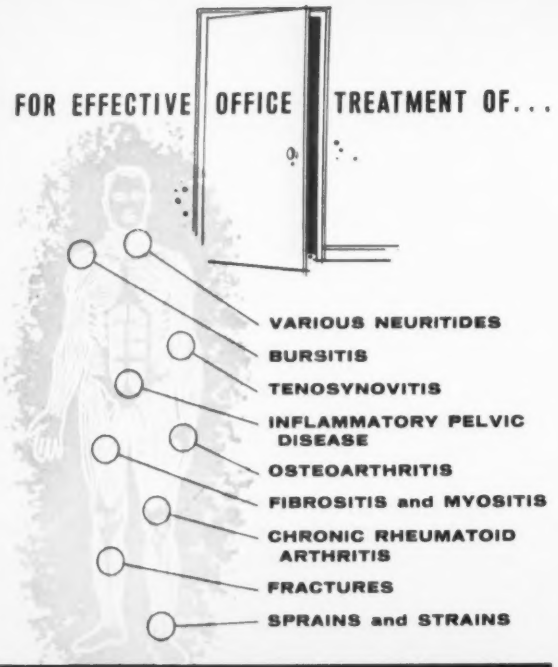

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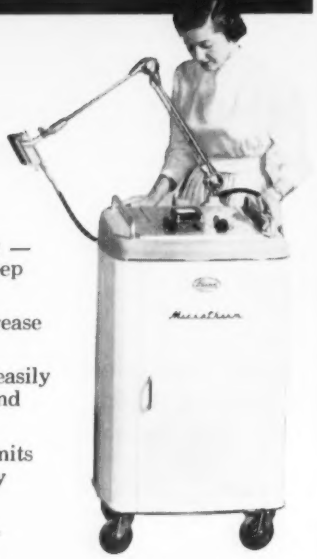

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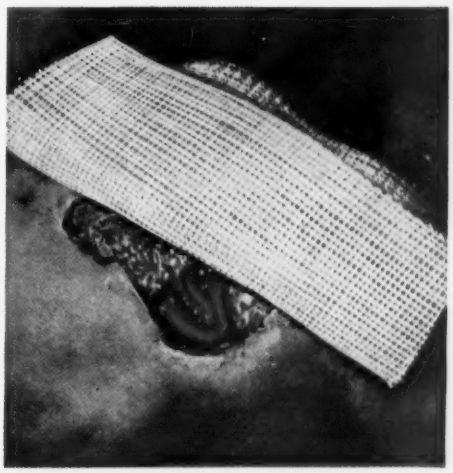
Sizes: 3″ x 3″, 3″ x 8″, 3″ x 16″, easily dispensed from peel-back packages.
Also, STERILE ADAPTIC® Packing Strips in ½″, 1″, 2″ widths.



See how easily ADAPTIC Non-Adhering Dressing is removed. Adherence is prevented by a special, bland emulsion which does not clog pores of the viscose filaments.

◀ Free dispenser with 3″ x 3″ office size.

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SQUIBB TRIAMCINOLONE

for all your patients starting on corticoids

Kenacort safely starts your patients off right — with all the benefits of systemic corticosteroid therapy and few side effects to worry about. Increased corticoid activity is provided on a low dosage schedule[1-3] without edema,[1-4] psychic stimulation,[1-3] or adverse effect on blood pressure.[1-3,5] A low sodium diet is not necessary.[4,5] Gastrointestinal disturbances are negligible[2,4,5] with less chance of peptic ulcer.[4] This makes Kenacort particularly valuable in treating your "problem patients" — such as the obese or hypertensive and the emotionally disturbed.

for all your patients with dermatoses requiring corticoids

Kenacort, particularly in treating inflammatory skin conditions, has proved effective where other steroids have failed. It quickly alleviates itching, erythema, and irritation with its enhanced antiallergic, anti-inflammatory and antipruritic activity. Because of its low dosage[1-3] and relative freedom from untoward reactions,[1-5] Kenacort provides corticosteroid benefits to many patients who until now have been difficult to control. It is particularly valuable for your dermatologic patients with hypertension, cardiac disease, obesity and those prone to psychic disturbances.

REFERENCES: • 1. Freyberg, R. H.; Berntsen, C. A., Jr., and Hellman, L: Arth. & Rheum. 1:215 (June) 1958. • 2. Sherwood, H., and Cooke, R. A.: J. Allergy 28:97 (March) 1957. • 3. Shelley, W. B.; Harun, J. S., and Pillsbury, D. M.: J.A.M.A. 167:959 (June 21) 1958. • 4. Dubois, E.L.: California Med. 89:195 (Sept.) 1958. • 5. Hartung, E.F.: J.A.M.A. 167:973 (June 21) 1958.

SUPPLIED:
Scored tablets of 1 mg. — Bottles of 50
Scored tablets of 2 mg. — Bottles of 50
Scored tablets of 4 mg. — Bottles of 30 and 100

SQUIBB Squibb Quality — the Priceless Ingredient

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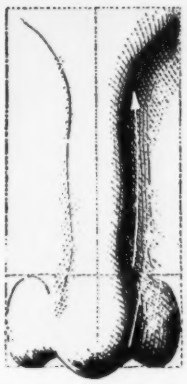
NOSE-OPENER

controls allergic factors — eliminates itching and sneezing with antihistaminic Thonzylamine HCl

spreads almost instantly

penetrates mucous barrier



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1. Borrus, J. C.: J.A.M.A. 167:15[illegible]il 30, J[illegible]2. Sell[illegible] S.: J.A.M.A. 167:1594, April 30, 1955. 3. Lemere, F.: [illegible]thwest Med[illegible]098, Oct. [illegible]5. 4. Ben[illegible] B. and M[illegible]ocutti, C.: Lav. neuropsichiat. 18:693, 1[illegible]5. Sellin[illegible].: J. Clin[illegible] Exper. Psy[illegible]th. 17:7[illegible] March 1956. 6. Berglund, M., Blumenthal, B[illegible]Flordh, P.: [illegible]eska läk. 5[illegible]3360, Dec. [illegible]1956. 7. [illegible]el, H. A., Wood, J. A. and Dixon, H. H.: [illegible]ew York Acad[illegible]. 67:780, May 9, 1957. [illegible]Hollister, [illegible]. Elkins, H., Hiler, E. G. and St. Pierr[illegible] Ann. New Yo[illegible] Acad. Sc. 67:789, May 9, [illegible]57. 9. G[illegible].: Rass. med. 34:233, July-Au[illegible]57. 10[illegible]i, R. et al.[illegible] J. Pediat. [illegible]axis 20:27, [illegible]. 1957. [illegible]Viklund, P[illegible]: Anaesthesist [illegible]7, Aug[illegible]. 12. Tucker, W. I.: Sout[illegible]. J. 50:1111, Sept. 195[illegible]. 13. Rolandi[illegible] Attual. ostet. [illegible]3(6):[illegible]9, Nov.-Dec. 1957. 14. [illegible]ecker, W.: Klin. Mon[illegible]l. Augenh[illegible]2):224, 1958. [illegible]ebianc[illegible]G. and Cecchi, T.: Oto-[illegible]ting. Ital. [illegible]6(2):143, 1958. 16. [illegible]o, G.: Mine[illegible]9:1914, 1958. 17. [illegible]uso, R. and [illegible]ti, F.: A[illegible]urol. [illegible]3(1):36, J[illegible]1958. 18. [illegible]Gazz. med. ital.[illegible]49, Feb. [illegible]. [illegible]astur, R.[illegible]: J. Indian M. Prof[illegible]13 Feb. 1958. [illegible]t, W.: Therap.[illegible]97:66, Fe[illegible]l. B[illegible]F.: Lyon méd. 19[illegible] March 2, 1958. [illegible]iglia, G.: Mine[illegible]10:218, M[illegible]5, 1958. [illegible]dlander, H. S.: [illegible] Cardiol. 1:395, [illegible]1958. 24. McCle[illegible]: Arch. Fe[illegible]75:101, [illegible]25. Sprauer, V. J.: Internat. Rec. Med. & GP Clinics 171:[illegible]1958. 26. [illegible]obinson, R.[illegible] Robinson, H. M., Jr.: South. M. J. 51:609, April 1958. 27. [illegible]S. and Fe[illegible]er, L.: N[illegible]d. 58:1285, April [illegible]5, 1958. 28. Bouquerel, J., Naviau and [illegible]e: Ann. méd. Psychol. 11[illegible]1958. 29. Reboul, E., Reboul, M. and Dorgeuille, C.: Maroc [illegible]37:764, July 1958. 30. R[illegible] Lyon méd. 200:885, Nov. 1958. 31. Lamphier, T. A.: Maryland M[illegible]7:627, Nov. 1958. 32. Le[illegible] Med. Klin. 53:2113, Dec. 1958.

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